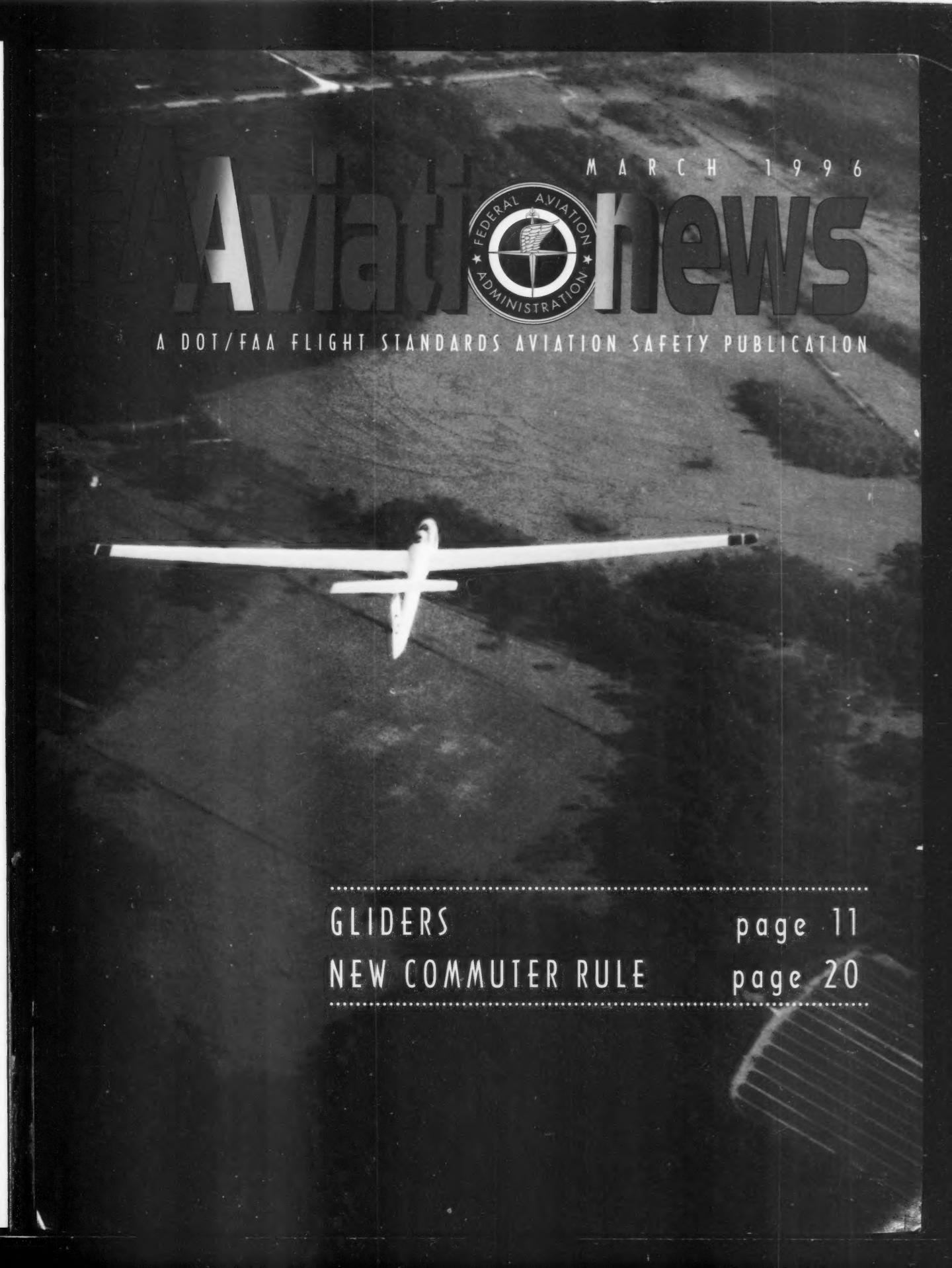

MARCH 1996

Aviation News

A DOT/FAA FLIGHT STANDARDS AVIATION SAFETY PUBLICATION

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NEW COMMUTER RULE page 20

U.S. Department
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MARCH 1996

FAA Aviation news

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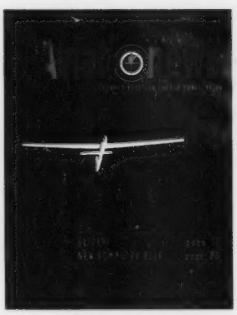

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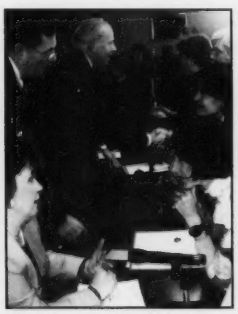

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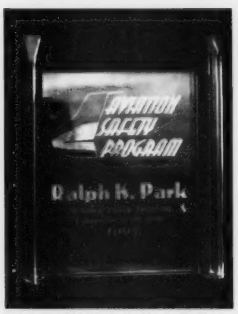

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http://www.faa.gov/avr/news/newshome.htm

FAA, Airlines, Manufacturers, and Pilots put faith in ...

TRAINING TO BEAT WAKE TURBULENCE

by Capt. Tom Duke (Ret.)

Wake turbulence accidents and incidents continue to occur, causing death, injuries, and hull losses. The following captain's report typifies the types of upsets being experienced:

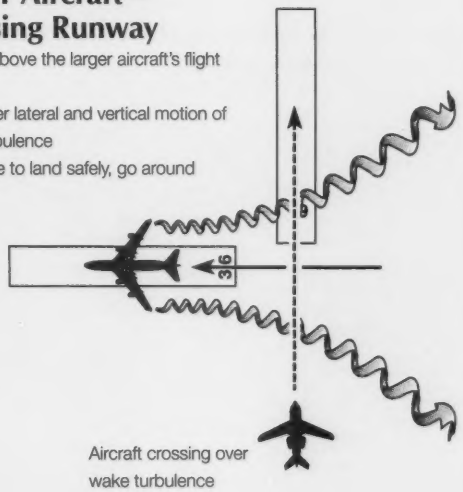
On a visual approach to MSP [flying a BA3100 Jetstream], we were being vectored off the localizer at 4,000 [feet] for spacing on traffic ahead. While on a 30-degree heading and level at 4,000 feet, we encountered the wake of a [B-] 757 ahead. [Our] aircraft rolled violently to the left (approximately 120-degree bank) and entered a rapid descent. The aircraft was completely out of control for several seconds. We regained control at approximately 2,500 [feet] MSL (1,700 [feet] AGL) and advised ATC of our encounter. We climbed and took a few minutes to clean up the cockpit. In the violent nature of this upset, various objects became flying objects. My flight bag (between the seats) flew up, tipped upside down, and landed on the floor. A metal 'can' for maintenance forms hit me in the head as did [a file] folder used for the deferral log documentation. In the cabin the wing spar cover came off and hit the rear bulkhead. Fortunately, no injuries were sustained by either crew or passengers. At the time of our visual approach clearance, we were only 3 1/2 miles behind the [B-]757 and were 1,000 feet below and downwind of the [B-]757's flight path. We were vectored below, downwind, and behind the [B-] 757. At the time of encounter, we were almost exactly two minutes [four miles] behind the [B-]757, 1,000 feet below his flight path at the same position relative to the runway. [Our] aircraft rolled violently left, so we must have entered his right wing tip vortex."

A February 1994 NTSB study shows that 51 wake-turbulence accidents and incidents were reported in the United States between 1983 and 1993. In these events, 27 people were killed and eight injured, and 40 aircraft were substantially damaged or destroyed.

Two of those incidents involved airliners as the trailing aircraft—a DC-9 in 1984 and an ATR-42 in 1991. The leading aircraft in 31 of the incidents were jet and turboprop airliners. Only six of the events involved a "heavy" transport category aircraft in the lead.

Fig. 1: Landing Behind a Larger Aircraft – Crossing Runway

- Cross above the larger aircraft's flight path
- Consider lateral and vertical motion of wake turbulence
- If unable to land safely, go around



To some persons, this could clearly appear to be mainly a small plane driver's dilemma. Not exactly....

The NTSB study also documented three accidents and two incidents involving B-757's as the leading aircraft in the period of December 1992-December 1993.

A Cessna *Citation*, a *Westwind*, and a Cessna 182 crashed. The pilots of an MD-88 and a B-737 experienced significant but recoverable loss of control and were able to land safely and file reports.

Four of the aircraft descended below the glidepath of the leading B-757's. The other aircraft entered the vortex at about 75 feet in ground effect. Two of the events happened while the following aircraft were attempting to land on a parallel or converging runway less than 2,500 feet from the lead airplane's runway.

Among NTSB recommendations was that pilots be provided training specifically related to the movement and avoidance of wake vortices and techniques to determine relative flight paths and separation distances.

Recently, a cooperative effort involving FAA, the Boeing Company, and a joint industry group developed training material to meet that need. The training kit consists of a 430-page comprehensive, well-illustrated manual titled: "Wake Turbulence Training Aid" in printed or CD-ROM form and an accompanying videotape.

The materials should have arrived at airline and ATC training departments early [last] August, according to FAA project manager, Cliff Hay. FAA also plans to distribute the materials to military, general aviation, and some participating foreign operators. [Editor's note: The Aviation Safety Program will be obtaining copies of the training kit to distribute to all Safety Program Managers for their use in planning and producing pilot safety seminars on wake turbulence.]

The kit's CD-ROM contains a slide presentation and script, lectures, NTSB studies, quizzes, and other background information. The program is designed to educate pilots and controllers in how

to avoid the wake-turbulence phenomenon and increase situational awareness, especially when operating in VFR conditions. Avoiding wake turbulence "takes cooperation and awareness among pilots and air traffic controllers," says the video presentation.

Wake Vortex Primer

According to the training kit, wingtip vortices vary in intensity based on the speed, weight, and wingspan of the generating aircraft. Vortices rotate clockwise off the left wing and counterclockwise off the right, as seen from behind the generating airplane. They spread laterally away from the aircraft and descend 500-900 feet within about five miles behind the aircraft. Vortices descend 300 to 500 feet per minute in the first 30 seconds.

Light crosswinds cause vortices to drift, and crosswinds greater than five knots cause them to break up behind the aircraft. Atmospheric turbulence and some other conditions generally cause them to break up more rapidly.

The term "heavy" serves as a clue to ATC to keep all trailing aircraft the following distances behind a "heavy":

- other "heavy" (more than 300,000 pounds), at least four miles
- "large" (12,500-300,000 lbs), five miles
- "small" (under 12,500 lbs), six miles

When a "heavy" is not the lead aircraft, the standard separation is three miles between all aircraft and as little as two-and-a-half miles in certain high-density airport situations.

Effective July 1, 1994, FAA established an interim measure to require four miles of separation of all small, large, and heavy aircraft following a B-757. The B-757 still must follow heavy aircraft by at least five miles.

Who among us has not received "an offer we couldn't refuse" and accepted a clearance for a visual approach with the caveat, "Caution: wake turbulence," when the size and speed differential became too difficult to calculate?

Therein lies the rub.

When accepting a clearance for a visual approach in trail, the pilot-in-command accepts responsibility for maintaining safe separation behind the leading traffic—often with insufficient, untimely, or inaccurate information transmitted on a crowded frequency. This could lead to real trouble, especially on "winds light and variable" days when the vortices hang around.

Examples of Upsets

The NTSB study stated each of the five upset aircraft had accepted a clearance for a visual approach behind a B-757. The B-737, the MD-88, the *Westwind*, and the *Citation* all started out with more than three-mile separation in trail behind B-757's but had their upsets at 2.5, 1.35, 2.1, and 2.78 miles, respectively. The Cessna 182 was upset in ground effect 35 seconds behind a B-757 landing on a nearby crossing runway.

Radar vectors to final had placed the B-737 too close behind the leading B-757. S-turns and slowing airspeeds were not enough to maintain a three-mile separation. The B-737 was landing at Denver Stapleton on a closely spaced parallel runway that had a threshold 1,300 feet closer. The B-737 was on a 3-degree glideslope, 32 seconds behind and 100 feet below the leading B-757.

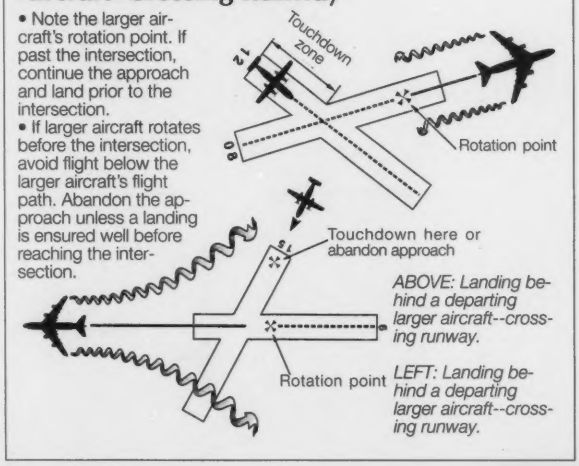
The B-737 rolled 23 degrees left and lost 200 feet in two seconds at about 900 feet AGL. The crew recovered, made a go-around, landed successfully, and reported the event to the company.

The MD-88, the *Westwind,* and the *Citation* all were maintaining what they believed to be 3-degree glidepaths but were found to be below the glidepath of the leading B-757 when their upsets occurred, according to NTSB. This probably happened because B-757's can fly steep approaches and because judging height is inherently difficult when visual cues are moving with a descending target in the ground clutter ahead.

The MD-88 flight crew started 4.5 miles behind the B-757 at Orlando when cleared for the visual approach. The MD-88 rolled 13 degrees right, wing down, when 110 feet above the ground; the pilots were able to recover and land. The in-trail separation between the airplanes had decreased to only 2.5 miles (65 seconds), and the 3-degree glideslope was only slightly below the lead in trail. The MD-88 crew thought they were about four miles behind.

The training manual reminds pilots that "tower controllers are responsible for runway separation for aircraft arriving or departing airports." Tower controllers do not provide visual wake-turbulence separation to arriving aircraft; that is the pilot's responsibility. Only when under IMC, or when pilots are unable to fly visually, are controllers "responsible for applying the wake-turbulence longitudinal separation distances

Fig.2: Landing Behind a Departing Larger Aircraft–Crossing Runway


• Note the larger aircraft's rotation point. If past the intersection, continue the approach and land prior to the intersection.
• If larger aircraft rotates before the intersection, avoid flight below the larger aircraft's flight path. Abandon the approach unless a landing is ensured well before reaching the intersection.
Touchdown zone
Rotation point
Touchdown here or abandon approach
Rotation point

ABOVE: Landing behind a departing larger aircraft--crossing runway.

LEFT: Landing behind a departing larger aircraft--crossing runway.

between IFR aircraft and to VFR aircraft."

Takeoff Hazards

The NTSB report also cited seven takeoff accidents out of 51 accidents involving wake turbulence. The accident aircraft were all light planes, the heaviest being a P-51. Only two lead aircraft—a DC-10 and a Beech 1900—were airliners.

We know that wake vortices occur only after a fixed-wing aircraft rotates on takeoff and have the same characteristics as those generated by any airborne aircraft. The vortices can cause problems for crossing or lower airborne traffic on departure. Low approaches, touch-and-goes, and go-arounds can also wreak havoc on taxiing or departing aircraft. With gentle crosswinds, vortices can drift across to a nearby parallel or crossing runway. We also know that vortices...diverge and dissipate more rapidly in ground effect.

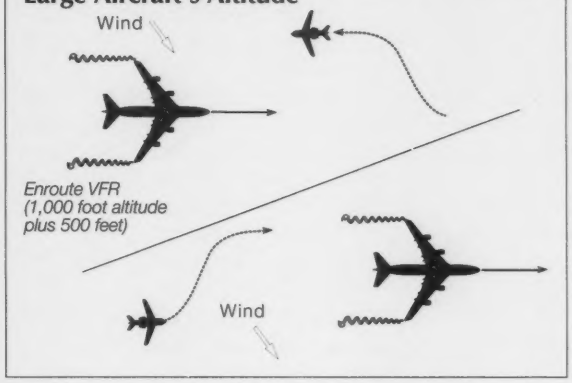
The training material says that tower controllers do provide wake-turbulence separation for departing aircraft by applying time intervals. The most common interval is two minutes for all aircraft behind a "heavy" on the same or parallel runway within 2,500 feet.

A similar restriction exists for aircraft taking off on a crossing runway if the departing/following aircraft will fly through the airborne lead airplane's path. Controllers are supposed to impose a three-minute delay for all aircraft making an intersection or opposite-direction takeoff behind a "heavy."

The training material notes that controllers also are required to apply a three-minute delay for small aircraft taking off from an intersection or in the opposite direction on the same runway behind a large aircraft. Pilots making a touch-and-go or stop-and-go landing are considered to be making an intersection departure.

Regional airline pilots have reported that tower controllers are spacing them four to five miles behind a B-757 departing on the same runway. This is about an 80-second interval and can easily be monitored on the tower's BRITE scope radar. When winds are light, following aircraft may still encounter the descending vortex path [generated by] a fast-climbing B-757 ahead. "Caution: wake turbulence" then takes on special meaning.

Fig.3: Enroute within 1,000 Feet Altitude of a Large Aircraft's Altitude



The training manual further reminds us that "a pilot request for takeoff does not initiate a wake-turbulence waiver request unless it specifically includes a request to deviate from the required wake-turbulence interval." Clearance will be approved when no other traffic conflict exists. Towers should inform pilots when they will need to hold by using the phrase "hold for wake turbulence," says the training material.

Visual Separation Problems

According to the training program:

- ATC may separate departing aircraft by visual means after considering aircraft performance, wake turbulence, closure rate, routes of flight, and known weather conditions. Controllers should not [clear flights to maintain] visual separation between successive departures when departure routes and/or aircraft performance would not allow the pilots to maintain separation.
- In the terminal area, the tower controller must have both aircraft in sight and must be in radio contact with at least one of them. The flight crew of the following aircraft must see the lead aircraft and be informed of the lead aircraft's position, its direction of flight, and its crew's intentions. The pilots of the following aircraft must acknowledge sighting the lead aircraft and be instructed to maintain visual separation by ATC.
- In controlled airspace with ATC radar coverage, ATC must inform the pilot of converging traffic and about VFR traffic. In terminal areas, "the tower controller shall not provide visual separation between aircraft when wake-turbulence separation is required (behind a 'heavy') or when the lead aircraft is a B-757," according to the pull-out section of the *Pilot and Air Traffic Controller Guide* in the kit.
- In cruise, when IFR and VFR aircraft are sometimes separated by as little as 500 feet, pilots must use proper avoidance procedures. Because wake turbulence is usually invisible, pilots must anticipate where it might be based on experience and knowledge of current wind conditions. ATC controllers issue "Caution: wake turbulence" warnings only and are not responsible for anticipating the existence or effect of wake turbulence. Pilots have reported "hitting a wall" and inflight injuries, even when crossing behind traffic while descending from altitude.

Avoidance Procedures

The video training aid emphasizes three basic warnings about wake turbulence:

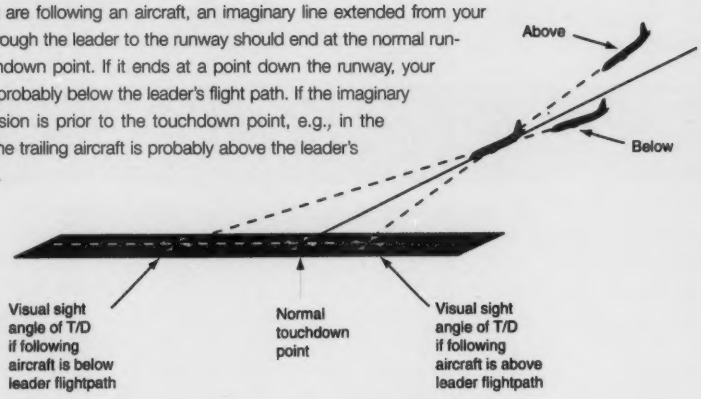
- Do not get too close.
- Do not get below the lead aircraft's flight path.
- Beware of days with light winds.

The training aid's slide briefing and video suggest the following avoidance procedures:

- If concerned about possible wake turbulence when landing behind a larger aircraft, note its touchdown point and land beyond it. If unable, go around.
- If landing on a nearby (within 2,500 feet) parallel runway behind a larger aircraft, consider possible wake drift and stay above the lead aircraft's flight path. Note where the lead aircraft touches down and land abeam or beyond that point.
- If landing on a crossing runway (where the touchdown zones are close), cross above the larger aircraft's flight path and land beyond where you estimate its turbulence may be. If unable, go around. (Figure 1)
- If landing behind a departing larger aircraft, note its rotation point and land before reaching it or go around.
- If landing behind a larger aircraft that is taking off on a crossing runway, touch down before crossing the takeoff runway.
- If taking off behind a larger aircraft, wait unless you are assured of rotating before the larger aircraft's rotation point. Then climb—displaced upwind of the larger aircraft—and avoid turns that may take you behind the path of the larger aircraft. Consider the lead aircraft's climb characteristics. (Figure 2)
- If making an intersection takeoff, be sure you can rotate before reaching the departing larger aircraft's rotation point. Avoid headings that will cross below the larger aircraft's rotation point. If unable to do so, wait.
- Wait two minutes after a heavy aircraft's touch-and-go, low approach, or missed approach before landing or taking off from that runway.

Fig 4: Visual Clues for Estimating Leader's Flight Path

While you are following an aircraft, an imaginary line extended from your aircraft through the leader to the runway should end at the normal runway touchdown point. If it ends at a point down the runway, your aircraft is probably below the leader's flight path. If the imaginary line extension is prior to the touchdown point, e.g., in the overrun, the trailing aircraft is probably above the leader's flight path.


Above
Below
Visual sight angle of T/D if following aircraft is below leader flightpath
Normal touchdown point
Visual sight angle of T/D if following aircraft is above leader flightpath

- Enroute within 1,000 feet of a large aircraft's flight path, avoid flight below and behind the large aircraft's path and adjust your lateral path upwind of the aircraft above. (Figure 3)
- When piloting a small aircraft, avoid taxiing within three rotor blade diameters of a helicopter that is hovering or hover taxiing at slow speed.
- When cleared for a visual approach, do not assume the aircraft you are following is on the same or lower flight path. The flight crew of the lead airplane may have flown a "slam dunk" approach. Stay above and at least three miles behind the normal flight path. Stay four miles behind a B-757.
- When following a larger aircraft on a visual final approach, look at the lead aircraft and its touchdown point to determine if you are below the lead aircraft's flight path. Aim to stay on or above the lead's flight path. (Figure 4)

Wake turbulence is one of the factors that pilots and air traffic controllers must overcome to ensure safe flights. "It takes cooperation, awareness, and the understanding of each other's requirements to safely avoid wake turbulence," the training kit's video concludes.

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FAA 1996 Sun 'n Fun Video Available

A videotape highlighting the VFR arrival procedures for Sun 'n Fun 1996 is available on loan from your local Flight Standards District Office. The video shows arrival procedures for different classes of aircraft and depicts key landmarks used as reporting points. Novice as well as veteran Sun 'n Fun pilots will benefit from a "dry run" before actually entering the busy skies around Lakeland, FL. A pocket card with frequencies and airport information is also available. Distribution of the tape and frequency card has also been made to EAA chapters in the eastern U.S. and Canada. Limited copies for the public are available from the FAA at (202) 267-7770. See the article on the following page for more info.

Sun 'n Fun 1996

by H. Dean Chamberlain

H. Dean Chamberlain photo

The FAA Notice to Airmen (NOTAM) for the 1996 Sun 'n Fun Fly-In has been released. The following is a brief review of some of the material in the NOTAM. Pilots who do not subscribe to a NOTAM service or do not have access to a computer version can obtain a copy of the NOTAM from their local Flight Service Station (FSS). All pilots flying to Lakeland, FL, for Sun 'n Fun need to review the NOTAM for instructions on getting in and out of the Lakeland airport during the Sun 'n Fun period.

The dates for Sun 'n Fun '96 are April 14 through April 20. The effective dates and times of the special procedures outlined in the NOTAM are from April 12 to April 20 from 0700 to 1900 EDT each day.

For those who have not completed their plans to go to Sun 'n Fun, it is not too late, but you need to do some good planning in a short amount of time. At this late date, your biggest problem may be finding nearby lodging.

BRIEF OVERVIEW AND FAA SAFETY SEMINAR SCHEDULE

This brief overview of Sun 'n Fun 1996 provides guidance on where to find needed flight planning information, some helpful operating hints, and a few safety tips to help make your trip safer and more enjoyable.

Included in this overview is the schedule of the FAA safety seminars at the FAA Aviation Safety Center Building (Page 10). The seminar schedule is subject to last minute changes and cancellations. Please check the daily listing at the Safety Center for any changes.

CURRENT CHARTS, NOTAMs, AND VFR AND IFR FLIGHT PLANS

All pilots are reminded to use current charts and to check the latest NOTAM information when planning their trip to Lakeland. The special Sun 'n Fun NOTAM describes in detail all arrival, landing, and departure information by type of flight plan and aircraft. When contacting your nearest Flight Service Station you should ask for a copy of the Special Air Traffic Management Plan NOTAM for Sun 'n Fun 1996. The plan is also being printed in the published FAA NOTAM starting with the March 14 issue.

The last thing you should do before departure is to file a flight plan. VFR pilots are reminded to file, open, and then close their flight plans. All pilots can expect the possibility of an en route delay because of the traffic volume and should plan for extra fuel in addition to required reserves. VFR pilots should also consider adding 30 minutes to their ETE's just in case of a possible delay or be prepared to extend their flight plans en route.

Pilots on IFR flight plans can expect vectors to fly the published Lake Parker VFR Visual Arrival Procedures when the ceiling is reported at or above 3,000 feet and visibility is five miles. IFR pilots need to be prepared to discontinue their approach and use the VFR traffic procedures for landing sequence.

Pilots on an IFR flight plan who don't cancel their IFR flight plan before landing at Lakeland must then cancel their own flight plan by contacting Tampa Approach on 120.65 MHz after exiting the runway. Please note this is a change from normal procedures where ATC would cancel the pilot's IFR flight plan upon landing.

Pilots may also want to review the *Aeronautical Information Manual*'s (AIM) section on emergency procedures. Remember if you need help, it is better to contact ATC, and even declare an emergency if need be, then to wait until it is too late for help to do you any good. A review of the AIM

dealing with fuel terminology might be appropriate for those not familiar with the revised phraseology.

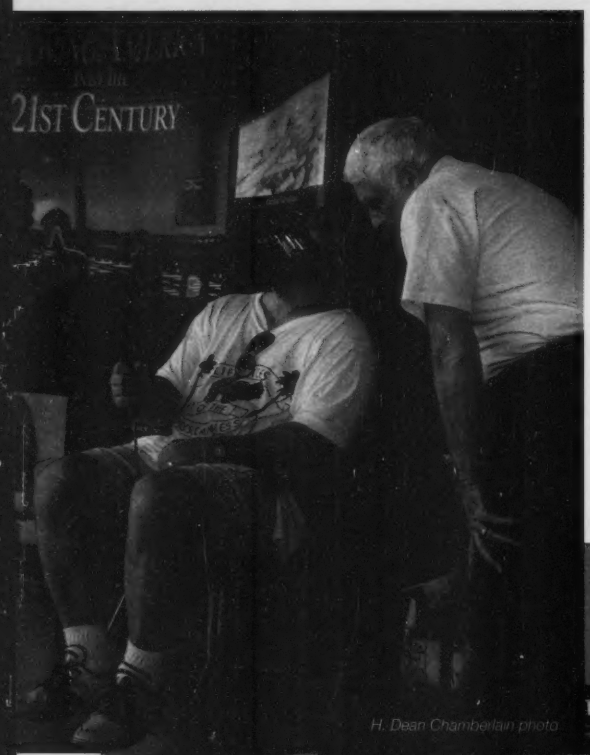
RADAR BALLOONS, MTR'S, TRAFFIC, AND OTHER CAUTIONS

VFR pilots not familiar with the radar surveillance balloons moored along the Florida coasts to detect drug smugglers, need to review their charts carefully for the small, round restricted areas enclosing the balloons and avoid those areas. Please check the accompanying warning message on the chart that reminds pilots of the danger by stating, "Caution: strobe lights and unmarked balloon on cable to 15,000 MSL." Because the balloons are in restricted airspace, they don't have to be marked like other balloons.

Pilots are also advised to check their charts and NOTAM's when flying throughout the southeast because of the number of military training areas and training routes in the region. All pilots, but especially VFR pilots, should contact the nearest FSS when flying near any military training route to see if the route is active. No one needs to meet a high-speed military jet head-on while flying to Lakeland. For that matter, no one needs to meet a low-speed family "commuter" head-on on the way to Lakeland either.

High-speed or low-speed, a midair collision will ruin everyone's day. To reduce the risk of a midair collision, all pilots are urged to use extreme caution when flying in, around, through, and away from the Lakeland area during this time period because of the number of aircraft expected at Sun 'n Fun. Pilots should fly with their landing lights and strobes on, if so equipped, when operating within 30 miles of Lakeland during this time.

Because of the diversity of aircraft traveling to and from Sun 'n Fun, pilots can expect to see any type of aircraft from slow-speed ultralight vehicles to high-speed business jets to warbirds to helicopters flying to, from, and near Lakeland. Because of this diversity, pilots may need to adjust their visual scanning technique to better "see" such traffic near Lakeland. Because of this mixture of aircraft, all pilots are advised to follow the special Sun 'n Fun ATC operating procedures outlined in the NOTAM. These procedures contain both arrival and departure information for all aircraft landing at Lakeland during the period of April 12 through April 20. By knowing the various routing information and procedures, you can avoid any possible conflicts with dissimilar traffic.



H. Dean Chamberlain photo

Margaret Haldane photo

Pilots should check 121.5 MHz on their radios periodically en route to and from Lakeland to help locate any possible accident sites as well as before radio shutdown to check for an inadvertent ELT activation.

H. Dean Chamberlain photo

SPECIAL AIR TRAFFIC MANAGEMENT PLAN

Like last year, we can only provide a brief review of the Sun 'n Fun NOTAM. Each pilot is responsible for reviewing the complete plan in the NOTAM as part of his or her preflight actions. All pilots are expected to comply with the procedures outlined in the plan.

In talking to the controllers working at Sun 'n Fun last year, their best advice for all pilots arriving or departing Lakeland during this time is to simply keep their aircraft moving. The smoothness of the operation is based upon controllers expecting all pilots to know and follow the guidance in the NOTAM. The controllers working arrival procedures away from the field, those working the tower, and those working the runway all expect identified aircraft to keep moving in an orderly flow throughout the process until the aircraft are safely tied down.

If an aircraft suddenly goes around, stops on the runway, or does something else unexpected in a non-emergency situation, it causes problems for everyone. The idea is to get all aircraft quickly and safely on the ground as soon as possible and off the runway to the parking areas without everything becoming backed up.

For departures, the controllers want to get everyone safely on their way as soon as possible for the same reason. To help in this process, all pilots are asked to review, understand, and then follow the procedures outlined in the NOTAM.

To avoid any stall/spin accidents, all pilots are asked to review, and better yet, practice flying their aircraft at minimum controllable speeds before arriving at Lakeland. The key to safety at Sun 'n Fun is for everyone to know and follow the procedures. Pilots have the added responsibility to know and understand the operating limitations of their aircraft and to be able to operate within those limitations before they become "Number 22" to land behind a slower aircraft with a faster aircraft right behind them. Small planes may have to land faster than normal, while faster aircraft may have to land slower, but, regardless of the speed of other aircraft, no pilot must compromise his or her safety by trying to fly at an unsafe airspeed.

If anyone has any type of problem, they should contact ATC immediately, be able to explain the problem, and propose a possible course of action. Everyone—the EAA, all airman, and the FAA—wants this event to be the safest in history. Everyone needs to do his or her part to ensure that happens.

AIRPORT MANAGER'S SPECIAL NOTICE

1. The control tower will be open and the Class D airspace will be in effect from 0630 to 2130 Eastern Daylight Time (EDT)

2. These special procedures will be in effect only from 0700 to 1900 EDT on April 12 through April 20, 1996.

3. Aircraft without special authorization cannot OPERATE in the Class D airspace SOUTH of the airport. This area is reserved for aircraft using other authorizations and procedures.

4. Student training flights are highly discouraged during this event. This includes student solo cross-country flights, touch-and-go landings, low approaches, and practice instrument approaches.

5. Limited grass-field operations can be accommodated. For "Special Grass-Field Authorization and Procedures," contact: Sun 'n Fun(EAA) Fly-In, Inc., P.O. Box 6750, Lakeland, FL 33807, telephone (941) 644-2431.

6. If Lakeland-Linder Regional Airport is IFR, taxiing is prohibited for all aircraft except those with IFR clearances.

AIRPORT CLOSURE HOURS

The airport will be closed daily from April 14 through April 20 from 1400 to 1800 EDT for the daylight aerobatic demonstrations and from 2000 to 2200 EDT on April 19 for a night demonstration.

ATC will not permit arrivals and departures during these periods. Exceptions to these procedures require prior approval by the airport manager, EAA, and ATC.

The airshow operations area is from the surface to 10,000 feet MSL within a five-statute-mile radius of Lakeland-Linder Regional Airport.

RUNWAY, TAXIWAY, AND APPROACH CLOSURES AND SHUTDOWNS

Runway 5/23 will be closed from April 11 through April 23. Several taxiways will be closed and so indicated on the ground by orange cones.

The ILS and NDB/GPS Runway 5 will be shut down from April 11 through 23.

VOR Runway 9 Approach will not be available from April 11 through 23.

HELPFUL HINTS

Do not make unnecessary radio transmissions where procedures clearly state *MONITOR THE FREQUENCY ONLY.*

Rock your wings with "gusto" for airborne acknowledgments.

Watch for *ORANGE-SHIRTED AIR TRAFFIC CONTROLLERS* giving hand signals for takeoff clearance and for exiting runways.

AFTER LANDING, DO NOT STOP ON THE RUNWAY. EXPEDITE CLEARING THE RUNWAY.

DO NOT STAND ON, WALK NEAR, OR WALK ACROSS RUNWAYS.

A waiver has been issued reducing the arrival and departure aircraft separation standards for Category 1 and 2 aircraft. This is primarily for single engine and light, twin-engine aircraft.

FAA FLIGHT PLANNING SERVICES

The St. Petersburg, FL, Automated Flight Service Station (AFSS) provides complete flight planning and information services 24 hours daily. In the region it can be accessed by telephone by calling 1-800-992-7433 (1-800-WX-BRIEF).

A temporary non-automated Flight Service Station (FSS) will be located at the FAA Aviation Safety Center Building at Sun 'n Fun from April 12 through April 20. Pilot weather briefings and flight planning services are available at the temporary FSS from 0600 to 1900 EDT daily during the Fly-In.

Because of expected frequency congestion, air filing of flight plans and requests for full-route weather briefings are discouraged between 0600 and 1900 EDT daily on the St. Petersburg AFSS frequencies.

Because of anticipated briefer workload, pilots are encouraged to contact the FSS as early as possible for their briefings and to file their flight plans.

INBOUND VFR FLIGHT TO LAKELAND

All VFR aircraft are expected to use the Sun 'n Fun Lake Parker arrival procedure found in the Sun 'n Fun NOTAM. The Tampa Class B and the Orlando Class B airspace are in effect during Sun 'n Fun. Pilots must remain outside of Class B airspace unless cleared into it by the controlling ATC facility.

As previously noted, pilots can expect possible en route delays and must plan for such delays. The key is to have enough fuel on board for any such delay. Delays that will extend your flight plan beyond your ETE must be compensated for by amending your flight plan with the nearest FSS.

Pilots are asked to ensure the color of their aircraft is listed in the remarks section of their flight plans.

Pilots may want to cancel their VFR flight plans while approaching within sight of their destination airport because there may be up to a 30-minute parking delay, although the safer practice would be to extend the VFR flight plan and cancel on the ground.

When contacting St. Petersburg AFSS, please use your complete call sign and what frequency you are listening on.

You can cancel your flight plan at the temporary FSS in the FAA Aviation Safety Center or by calling 1-800-992-7433 or by calling Lakeland Radio on 127.1 MHz.

LAKE PARKER VFR ARRIVAL

When you are 20 to 30 miles from Lakeland, listen to ATIS—118.65 MHz—for landing and special information. When the volume of aircraft exceeds the airport's acceptance rate, VFR holding will be required before you reach or once you arrive over Lake Parker.

As you approach Lake Parker (Lakeland VORTAC 040 degrees at 7NM), turn your transponder "OFF," and MONITOR Lake Parker Arrival on 124.5 MHz, and fly westerly over the powerplant smokestack with white strobe lights, which is located at the north end of Lake Parker.

Expect heavy air traffic, some without radios, in this area. All aircraft should maintain 100 knots at 1,200 feet MSL, inbound from Lake Parker. Aircraft unable to slow to this speed safely should maintain 150 knots at 1,700 feet MSL.

Controllers located on the ground at Lake Parker will contact you, using your aircraft "color" and "type" to provide sequencing and other arrival and traffic pattern information. They will contact you in the vicinity of the north powerplant and may ask you to "rock

your wings"—do so with "gusto"—as an acknowledgement for instructions. *REMAIN IN TRAIL TO THE AIRPORT—SIDE-BY-SIDE AIRCRAFT SEPARATION IS PROHIBITED.*

VFR HOLDING AT LAKE PARKER

If VFR holding becomes necessary, the Lake Parker holding pattern will be used. A lead aircraft will be instructed to turn left and proceed southbound over the west shore of Lake Parker, continuing counter-clockwise around the Lake. All other aircraft will be instructed to follow the leader in single file. Traffic in the Lake Parker holding pattern will be monitored by controllers located on the west side of Lake Parker. *WHEN HOLDING AT LAKE PARKER, DO NOT PROCEED PAST LAKE PARKER WITHOUT AN ATC CLEARANCE TO DO SO.*

TRAFFIC PATTERN PROCEDURES

All arriving aircraft will enter the Class D airspace only via the Sun 'n Fun—Lake Parker Arrival Procedure. Only left traffic for Runway 9L or right traffic for Runway 27R will be used with downwind leg entry close to the airport over Airport Road. NOTE: This "runway" (9L/27R) is a narrow 50 foot-wide strip usually used as a taxiway.

DO NOT LAND ON THE MAIN, WIDE RUNWAY 9R/27L, UNLESS SPECIFICALLY INSTRUCTED BY THE CONTROL TOWER.

Use caution for special events and be alert for fly-by aircraft using the main runway with opposite-direction base leg entries.

All landing traffic must remain alert for possible radio or light signal wave-off's from the tower. Red smoke or hand signals from orange-shirted air traffic controllers located near the approach end of the runway in use may also be used to signal a wave-off. Plan your landing to clear the runway as soon as possible on a hard surface.

Pay close attention to the location of the displaced thresholds on Runways 9L and 9R. They will be identified by a flashing strobe and light bar located on each side of both runways.

CONCLUSION

This is a very brief overview of some air traffic procedures for Sun 'n Fun. For example, we did not discuss the complete arrival and landing procedures including ATC's request for parking signs, departure procedures, no radio (NORDO) procedures, or detailed IFR operations including how to obtain a controlled IFR arrival time slot. We also did not discuss the special procedures for Warbirds, helicopters, and ultralights. You must review the complete FAA/Sun 'n Fun Special Air Traffic Management Program outlined in the NOTAM for the safe operation of aircraft flying to and from Sun 'n Fun.

We cannot over-emphasize the importance of having current charts and the Sun 'n Fun NOTAM with its published operating procedures when flying to Sun 'n Fun.

Because of the number of aircraft expected in the Lakeland area before, during, and after Sun 'n Fun, every pilot is cautioned to maintain a careful watch for other aircraft throughout the central Florida area during this period.

While at Sun 'n Fun, you should stop by the FAA Safety Center and view the many FAA displays and exhibits such as those on GPS. While at the Safety Center, you should also plan on attending one or more of the many safety seminars offered by both FAA and industry experts and leaders.

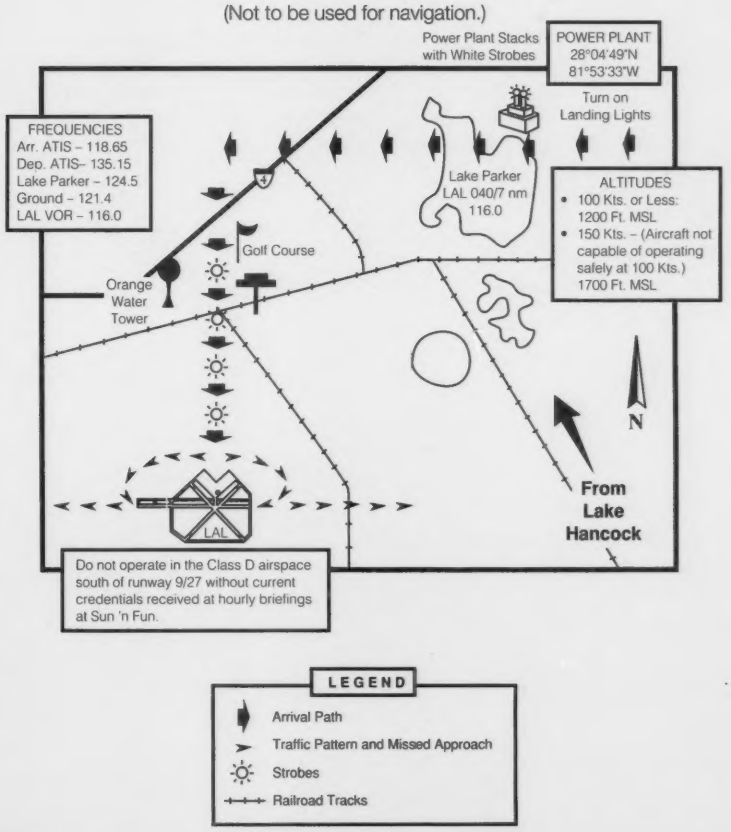
Before leaving Lakeland, you should stop by and say hello to the friendly folks at the temporary Flight Service Station located in the FAA Safety Center for your departure weather briefing and to file your flight plan. You will be glad you did.

Let's all keep the "fun" in Sun 'n Fun by having a safe flight to and from Lakeland.

VFR Arrivals to Lakeland Linder Regional Airport

Lake Parker Arrival Procedures

(Not to be used for navigation.)


Power Plant Stacks with White Strobes
POWER PLANT
28°04'49"N
81°53'33"W
Turn on Landing Lights
FREQUENCIES
Arr. ATIS – 118.65
Dep. ATIS– 135.15
Lake Parker – 124.5
Ground – 121.4
LAL VOR – 116.0
Lake Parker
LAL 040/7 nm
116.0
ALTITUDES
• 100 Kts. or Less: 1200 Ft. MSL
• 150 Kts. – (Aircraft not capable of operating safely at 100 Kts.) 1700 Ft. MSL
Golf Course
Orange Water Tower
N
From Lake Hancock
LAL
Do not operate in the Class D airspace south of runway 9/27 without current credentials received at hourly briefings at Sun 'n Fun.

1996 SUN 'N FUN

FAA SAFETY CENTER SEMINAR SCHEDULE*

Meetings are held in the FAA Aviation Safety Center Building

Saturday April 13

0830-0930	Aerospace Educators
1000-1100	Life of a Professional CFI
1130-1230	Young Eagles
1300-1400	METAR/TAF
1430-1530	WX in the Cockpit/Data Link
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Tuesday April 16

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1600-1700	Proper Care & Feeding of a Rotax Engine
1800-1900	Aero from a Historical Perspective
1930-2030	FAA Safety Forum On-line

Wednesday April 17

0830-0930	GPS - AOPA
1000-1100	Reducing Cockpit Stress Between the Sexes
1130-1230	Flight Testing Amateur Built Aircraft
1300-1400	Operation Communication
1430-1530	Gyros
1600-1700	The Last Thing an Aircraft Does Is Fly
1800-1900	Establishing Personal Safety Minimums
1930-2030	Fun Night-Thanks for the Memories

Thursday April 18

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Commercial Glider Pilot—A Dream Come True

by H. Dean Chamberlain

Gliders. For some, the word conjures images of sleek, long-winged, hi-tech, fiberglass flying machines silently soaring on a hot summer day.

For others, it brings back thoughts of hours of training in hot, chunky two-place gliders made in Elmira, NY, America's soaring Mecca.

For yet others, gliders are only a dream. But, dreams can come true.

Although it took 18 years, I fulfilled one such dream last fall. It didn't seem like 18 years had elapsed between my first three glider lessons in 1977 and when I was finally able to soar solo in a small thermal over central Florida last September. What made the flight memorable was the fact that I actually gained 2,000 feet of altitude, and I was sharing the thermal with a very large, black bird. To be able to look across a wing tip and watch a bird soaring close enough to you that you can see its breast muscles ripple beneath its feathers as it banks to stay within the thermal is an experience not soon forgotten. Then to watch the bird seemingly become bored, tuck its wings against its body, then dive down and away from the glider was worth the time, effort, and cost of the flight.

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Your soaring dream doesn't have to take 18 years to finish, nor do you have to travel to Florida to learn how to fly gliders.

You just need someone to convince you to take that first, or in my case that belated fourth lesson, that leads to your learning how to fly gliders. In my case, it was talking to several FAA employees who fly gliders. Their stories about flying gliders brought back memories of a rating never completed.

Their conversations also gave us, the magazine staff, the idea for our next article on ways pilots can regain their flight currency and proficiency after a winter of limited or no flying. Adding another rating such as a glider rating or taking some other type of recurrent flight training such as participating in the FAA "Wings" program with a certificated flight instructor (CFI) is an excellent way to "get back up to speed" in your flying.

Why our interest in some form of refresher training? As part of the FAA's Aviation Safety Program, we know, based upon accident statistics and trends, that pilots who continually train and who are current and proficient are statistically safer pilots. Simply stated, safety in flying is a never-ending learning experience.

The fun thing about learning to fly gliders is it is basic stick and rudder flying with an increased emphasis on judgement. Gliders can definitely make your spirits "soar" while challenging your flying skills.

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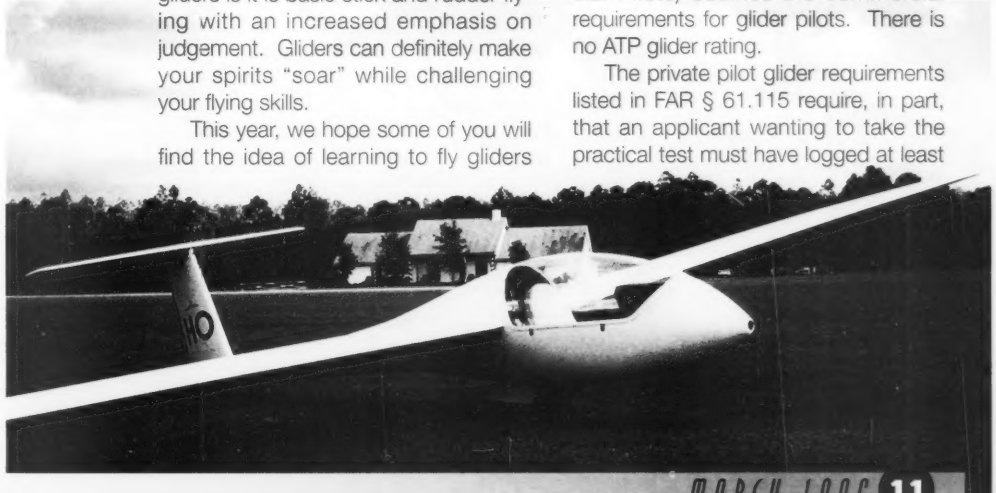

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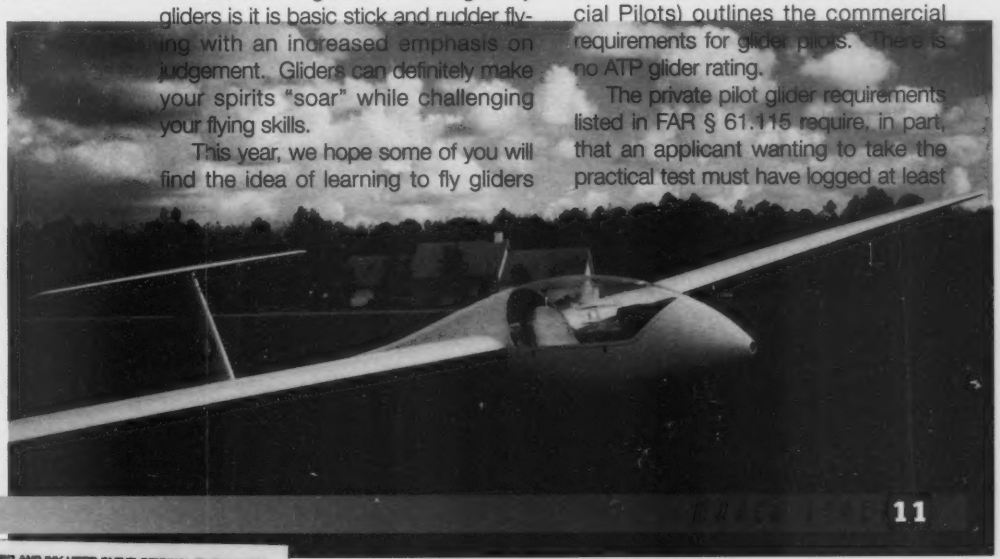

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one of the following to qualify: (1) At least 70 solo glider flights including 20 solo flights during which 360 degree turns were made; (2) Seven hours of solo flight in gliders, including 35 glider flights launched by ground tows, or 20 glider flights launched by aero tows; or (3) 40 hours of flight time in gliders and single-engine airplanes, including 10

Obie Young II

Soaring and fifteen-year-old Obie Young II were made for each other since he has been flying literally since before he was born. His mother, a private pilot, earned her FAA Phase I Pilot Proficiency Awards Program "Wings" when she was eight months pregnant with Obie II. He then took his first flight when he was only three weeks old. Since his father was a professional pilot for years before he became an FAA Aviation Safety Inspector, Obie II has flown in everything from homebuilts to business jets.

According to him, "Flying is in my blood."

As Obie II tells the story, it is hard for me to imagine a more stressful situation for a first solo. As anyone who has ever soloed or taken a checkride knows, each event can be stressful enough with no one watching, but imagine the following situation. There they were: Obie, the proud father, FAA aviation safety inspector, and career aviator; Mrs. Ramona Young, the typical concerned mother; Knut Kjenslie, the owner of Seminole-Lake Gliderport and designated pilot examiner; and the tow pilot waiting to tow. All watching the preparations for Obie II's first solo. As one who hates check rides with a passion, I think with such a crowd watching I would have just stopped and gone for coffee.

I'd like to think Obie II was probably the most relaxed person on the field that day as he prepared for his first solo glider flight. Like any proud father witnessing a milestone in his child's life, Obie (Obie One, as some call him when his son, who they then call Obie Two, is present) made sure that his son's first solo glider flight was well documented. Like any proud parent, if asked, Obie will gladly show you his photographs of that day.

Since then Obie II has made about 70 flights and has logged about 24 hours in gliders. He has completed the private glider pilot flight requirements. Now he only has to take the written and check ride. His only problem is he has to wait until he is 16 to take the check ride.

Obie II is an important part of this story because his experience is not unique. His glider training is an example of how other teenagers can start learning how to fly. Since his first solo, Obie II has earned his Soaring Society of America's A, B, and C badges for his flight accomplishments. He is also learning to fly another type of glider. According to his father, the training cost has been about $2,400 or about $100 per hour or about $35 per flight. Regardless of how you calculate the cost, Obie I says, "The cost is well worth it."

Gliders and teenagers are made for each other because 14 year olds can become certificated student glider pilots. Because of that fact, gliders can be an important first step in developing any teen's interest in aviation. Teens can become certificated private glider pilots at 16. They also don't need an FAA medical certificate to fly gliders. Like free balloonists, glider pilots only have to sign a statement that they have no known medical problem that would prohibit them from safely exercising the privileges of their glider certificate.

A well-rounded honor roll student, Boy Scout, and Junior FAA Aviation Safety Counselor, Obie II is representative of those teenagers with a love of flying. Like many teens, he has built model aircraft as well as building and launching solid-fuel model rockets.

One of the many good things about aviation is it is one of those challenging areas of science and transportation where teens learn about science, weather, aerodynamics, and mathematics while pursuing their dreams of flight. Flying truly makes learning fun.

Soaring allows teens to follow their aviation dreams by learning to fly gliders before they are old enough to drive a car or solo an airplane. In many cases, flying provides a great incentive to earn and manage flying money.

Starting to fly gliders is easy. In Obie's case, he was able to learn at a gliderport where his father flies. Commercial gliderports or airports with glider operators can be found in most major areas. Club flying is another way students can learn to fly gliders. The Soaring Society of America (SSA) and its local chapters and clubs can provide an aspiring glider student a structured way to learn to fly by flying with others interested in the sport. SSA also offers junior soaring awards and college scholarship grants to teens 14 through 20 years old.

Another training option for some teens is their local Civil Air Patrol (CAP) squadron. Each year, CAP holds several summer encampments around the country where CAP cadets can learn to solo gliders. In addition to the possibility of learning to fly gliders, CAP provides cadets with a year-round aviation learning environment. Both Obie I and his wife are CAP members.

These are only a few of the ways teens, 14 years old and older can learn to fly gliders. For those such as Obie who want to continue their flying careers, they will move on to powered aircraft when they are old enough. Many will continue their aviation dreams at college. A few teens will reach their goal and eventually fly for the airlines, a company, the military, or go into space with NASA. But regardless of whether or not every teenage glider pilot gets to attain his or her goal of a professional flying career, the skills, knowledge, and discipline they learn flying gliders will stay with them throughout their lives. For teens, gliders can be a natural high.

THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION.

"Do you really want to...pull the knob that will release your connection to the tow plane?"

"It took me a while to decide which end of the yarn I had to step on!"

solo glider flights during which 360 degree turns were made.

The reference about ground tows or aero tows is important. For those not familiar with launching gliders, there are three primary means used to get gliders airborne. In the United States, one of the most popular ways is to tow the glider behind a powered airplane to altitude. This method also allows the tow plane to tow the glider to a good soaring area. Another method is ground launches in which a winch and cable or even an automobile with an attached tow rope is used to provide the glider with enough speed to get airborne. This method involves the least amount of outside equipment and resources. The third method is self-launching. Some gliders have small, built-in engines that in some cases are truly works of art. The engines give the gliders enough power to get airborne. They also allow the gliders to fly in zero lift conditions. Motorized gliders not only reduce the chance of the glider having to make an off-gliderport or airport landing in zero lift conditions, they also reduce the need for a launch or retrieval crew.

The type of launch technique the glider pilot applicant demonstrates during certification testing determines what type of operating limitation is placed on his or her pilot certificate. The glider pilot is then restricted to using only the launch method or methods listed on the certificate. To be able to use all three types of launch methods, a glider pilot must be trained and tested in all three methods. A person who trains solely in powered gliders is limited to operations in powered gliders only. A designated glider pilot examiner or FAA inspector can do the respective testing either for initial or added launch methods after the applicant has received appropriate instruction and been recommended by a certificated flight instructor.

As you can see, the need for help to launch a glider and the possibility of it having to make an off-gliderport landing on a cross-country flight are why we say flying gliders is a team effort. With proper preflight planning and good pilot judgement, the chance of an off-airport or off-gliderport landing is minimal. However, the possibility of an emergency landing does exist. Therefore, proficiency in off-airport or off-gliderport landing procedures is an important part of training.

Obie Young II

Continued on Page 25

Nachthexen

By Flight Attendant Anne Dunbar

I remember clearly the "Space Race" of the late 1950's and all through the 1960's. Spawned of the Cold War between the planet's two superpowers of that era, the Space Race meant being the first—first in space, first in orbit, first to the moon. Soviet test pilot Yuri Gagarin was first in manned orbital flight (taking both the first in space and in orbit simultaneously) in 1961. Soviet Aleksei Leonov was the first human being to walk in space in 1965. In 1963 Valentina Tereshkova was the first woman in space, followed 20 years later by American Sally Ride.

There is one more first the Soviets "won." In spite of the rich history of American women in military aviation personified by the Women's Air Service Pilots (WASP's) in World War II, the U.S. Armed Forces didn't begin training women for air combat service until 1993. Yet, in 1942 the Soviet Union formed three regiments of women combat pilots who flew night combat missions and were so successful and deadly the Germans feared them, calling them *Nachthexen*—night witches. The WASP's, unable to convince the military bureaucracy that they were willing and capable of air combat, had to be content to watch their daughters and granddaughters effect the change in U.S. policy 50 years after their service; it was a matter of equality and opportunity. The Soviets used pilots of both genders in World War II out of dire necessity. (The Germans used women test pilots—namely Melitta Schiller and Hanna Reitsch—but they retained civilian status and flew aircraft from the factories to the front; they did not fly in actual combat.)

A bit of a history lesson here—Nazi Germany and the Soviet Union signed a mutual non-aggression pact in 1939. Consequently, the Soviets conspicuously stayed out of the invasion of Poland in 1939, receiving a chunk of Polish territory as a reward. For two years the Soviets put such stock in that treaty that in 1941 their border armaments ignored more than 500 overflights of German photo reconnaissance aircraft.

Then, at 3:15 a.m. on June 22, 1941—a date that lives in infamy for the Russian people—the German blitzkrieg came to Mother Russia in the form of Operation Barbarossa.

The Soviets were caught completely off-guard. Airports with runways long enough to serve their new fighter and bomber aircraft were still under construction on the western

Lily Litvak

and southern borders where the German invasion struck. Fighter aircraft were limited in number along the border and were uncamouflaged and vulnerable. The pilots who managed to get into the air usually had 15 or fewer hours of experience, some as few as four hours of training. German pilots were well-trained and fierce. The Soviet Air Force, with its rigid, inflexible tactics, was cut to ribbons.

Much like the aftermath of Pearl Harbor six months later, tens of thousands of Soviet youth, fired with patriotism and anger at the invaders, went to recruiting offices to join the Soviet Armed Forces and refurbish the Soviet Air Force. The youth who eagerly volunteered to fight for their country were men and women, most in their teens and many of them holders of newly minted pilot certificates. In the 1920's and 1930's the Soviet Union had a series of paramilitary flying clubs called *Osoaviakhim*. Any Soviet boy or girl could join and learn to parachute or fly first gliders then powered aircraft for free. Some of the 17-year old girls who showed up at the recruiting offices had much more flying experience than their sorely lacking comrades at the front who had just been bested by the Luftwaffe.

Bruce Myles, in his book, *Night Witches*, says, "Harassed officials rejected the young women without exception. The response to one young woman, who was later to become a Hero of the Soviet Union, was fairly typical: 'Things may be bad but we're not so desperate that we're going to put little girls like you up in the skies. Go home and help your mother.'"

Fortunately, Soviet girls—like American girls—didn't take too kindly to such advice. They waited, and, as the full brunt of the initial invasion and its cost in human resources were realized, they didn't have to wait long. The official position changed, and the young girls were asked to come to the aid of Mother Russia.

The Soviets planned three women air regiments, each with three squadrons of 10 aircraft. The mechanics, armament fitters, and other personnel would also be women. Each regiment would then have approximately 400 women. Thousands of applications were received and narrowed down to 2,000 to be interviewed.

Like the U.S. women who ventured to Sweetwater, TX to become WASP's, young Soviet women came from all over the vast country to Moscow. Many of them, en route by train, saw the war first hand before they ever began their pilot training—the Luftwaffe strafed the trains and the young women shared their seats with fully armed soldiers headed for the front.

The WASP's had key figures in their organization and implementation—Jacqueline Cochran and Nancy Love. For the Soviet women pilots, it was Marina Raskova. In 1938 Raskova and two other Soviet women had set a world record for a non-stop direct flight by women when they flew a Soviet-built, twin-engine aircraft named *Rodina* (homeland) 6,000 kilometers across the expanse of the Soviet Union from Moscow to Komsomolsk-on-Amur in the Far East. With the aircraft icing up over the Siberian wilderness, the women tossed everything movable out of the aircraft to try and gain altitude. Finally, Raskova, who had been the navigator, decided she would have to go as well. She marked the aircraft's compass heading on a map and bailed out into the darkness. The two remaining pilots eventually landed safely at their destination, and a hunter rescued Raskova. The three "Winged Sisters" returned triumphantly to Moscow. Already a folk heroine, Raskova was the logical choice to recruit, interview, and oversee the training of the women aviators.

Myles reports that Raskova, in 1941 a Major in the Soviet Air Force, herself was as nervous about recruiting these young girls as they were about meeting a famous Hero of the Soviet Union. Raskova knew she could be sending them to die—a conundrum faced by any military commander. She asked the young recruits, "Aren't you frightened to go to the front? Don't you know that these bad men on the other side will be shooting at you? One inspired young woman replied, "Not if I shoot them first, Major Raskova."

In October of 1941, the young women reported to the town of Engels on the River Volga north of Stalingrad. Their first order of business was to break out needle and thread to alter the uniforms provided them, hand-me-downs from their male compatriots—oversized tunics and vests, baggy pants, and huge greatcoats whose belts wrapped twice or more around their frames and boots whose toes had to be stuffed with newspaper in order to fit their small feet. In spite of the ill-fitting uniforms, the uncertainty of their success, and the prospect that those who did succeed could die in combat, the women were reportedly relaxed upon their arrival. On the trip south from Moscow, says Myles, "They laughed and joked and speculated on what the boys would be like tomorrow in Engels."

Training in Engels was intense. Twelve to 14-hour days of flying and ground school were necessary to cram what should have been two years' worth of training in peace time into a war time necessity of six months. The Soviet Air Force needed to get pilots into the air because, in the interim, the Germans had free run of Soviet skies, striking far into the heart of the country and regularly bombing Moscow.

Initial training was in Polikarpov PO-2 wood and fabric biplanes. The women practiced bombing from different altitudes as well as night flying, dual then solo. There was a pilot and navigator in each aircraft after the instructors moved out, and the pilots and navigators rotated flying with each other so that Raskova could evaluate which teams flew best together.

Although the PO-2's had no guns, instructors attempted to teach dogfighting through simulation of cannon fire in air-to-air combat. The women took turns in the air being Soviets and Germans, dogfighting with each other and their instructors. The women took delight in making up combat aerobatics on the spot and also took great pride in "killing" their instructors and some of the highly experienced male pilots—including some who had had combat experience against the Luftwaffe—brought in to be worthy adversaries.

After six months of training at Engels, Major Raskova posted the regimental assignments. All the women had, of course, wanted to be fighter pilots, but they all knew that only a few would make it to fighters. The fact that their homeland was now entrusting them with its defense and salvation only slightly eased the deep disappointment for many who would be flying the less "glamorous" aircraft—like their well-travelled trainers, the PO-2's, which had been refitted as bombers for the 588th Night Bomber Regiment. Because they were now soldiers, the disappointments were quickly put aside, and the women were ready for the front.

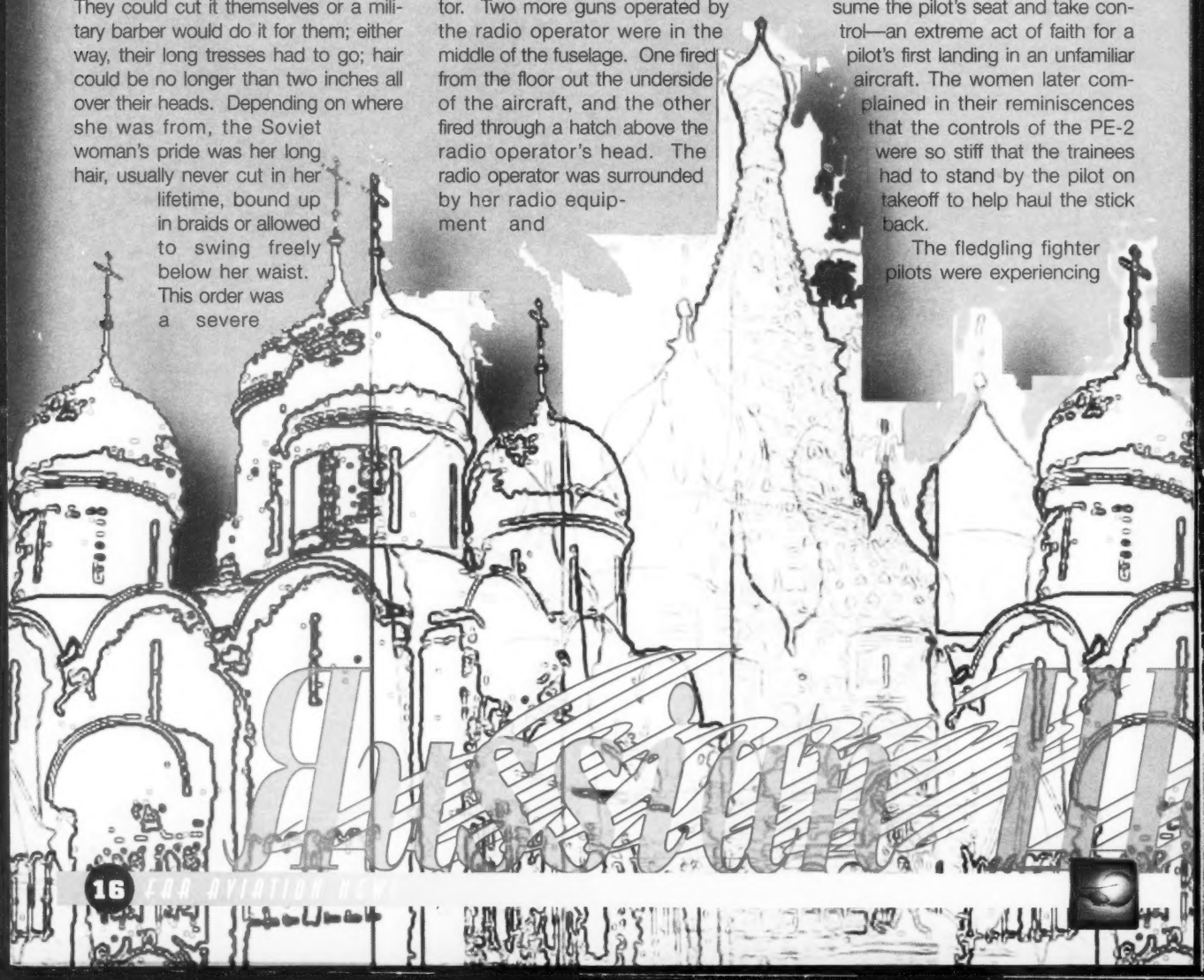
Well, almost. The male commandant of the training base decided the women did not look soldierly enough and ordered them to cut their hair. They could cut it themselves or a military barber would do it for them; either way, their long tresses had to go; hair could be no longer than two inches all over their heads. Depending on where she was from, the Soviet woman's pride was her long hair, usually never cut in her lifetime, bound up in braids or allowed to swing freely below her waist. This order was a severe blow to the women who had wanted to be pilots but who had wanted also to retain their femininity. Faced with the order, the women opted to cut each others' hair, rather than subject it to the zeal of a military barber. There were many tears and much sadness, but they all reported the next day, cropped and coifed, ready to fight. (Ironically, a high-ranking general came to inspect the new pilots and was dismayed at the short haircuts of the women, lamenting they all "looked like boys.")

The women began advanced training in the aircraft they would fly in combat. The 587th Women's Day Bomber Regiment would fly the Petylakov PE-2, which carried a three-woman crew—a pilot, navigator, and radio operator/gunner. Two fixed guns fired forward, and a swiveling machine gun in a bubble was positioned behind the navigator. Two more guns operated by the radio operator were in the middle of the fuselage. One fired from the floor out the underside of the aircraft, and the other fired through a hatch above the radio operator's head. The radio operator was surrounded by her radio equipment and boxes of spare ammunition belts for her guns.

There was one piece of non-standard equipment almost every woman had to use—cushions for the seats. Most of the women were small, several inches shorter than male pilots, and cushions were needed to boost them so they could see over the instrument panel and reach the rudder pedals.

To teach the idiosyncrasies of the PE-2's takeoff, the instructors employed an unusual training configuration. The women pilots stood in the cockpits beside the instructor (there were no jump seats) watching how he operated the aircraft and listening to a continuous lecture on the performance of the aircraft. After several takeoffs this way, the instructor would stabilize the aircraft at altitude, then slide out of the seat, allowing the women to assume the pilot's seat and take control—an extreme act of faith for a pilot's first landing in an unfamiliar aircraft. The women later complained in their reminiscences that the controls of the PE-2 were so stiff that the trainees had to stand by the pilot on takeoff to help haul the stick back.

The fledgling fighter pilots were experiencing



their own learning curve in the YAK-1's. Compared to the PO-2 training aircraft, the YAK-1 was quick and powerful, unforgiving of mistakes and adventurousness. But the woman built confidence in the aircraft as their experience grew. They learned formation flying standard for the Soviet Air Force fighter units. Once again, they practiced dogfighting with each other and with their instructors. Target drogues were hauled out, and they practiced gunnery skills.

Their advanced training complete, they prepared for their transition to combat with a final party and dance at Engels. The male pilots at Engels were invited, and they were entranced by the women. One of the male pilots was overheard begging one of the women pilots not to write anyone except him when she left Engels. Her response, "Let's get the fighting over first, darling, then maybe we can talk about love."

The next morning, the women were issued their sidearms, and the YAK-1's were rolled out for the fighter pilots. As Myles puts it, amid wild cheering, the women pulled their leather flying helmets on, walked to their aircraft, "strapped themselves in, pulled the canopies shut, and took off....The last formation waggled its wings in salute....They were ordered to test their guns en route, and the short bursts smashed through the new fabric pasted over the gun ports. The women had gone to war."

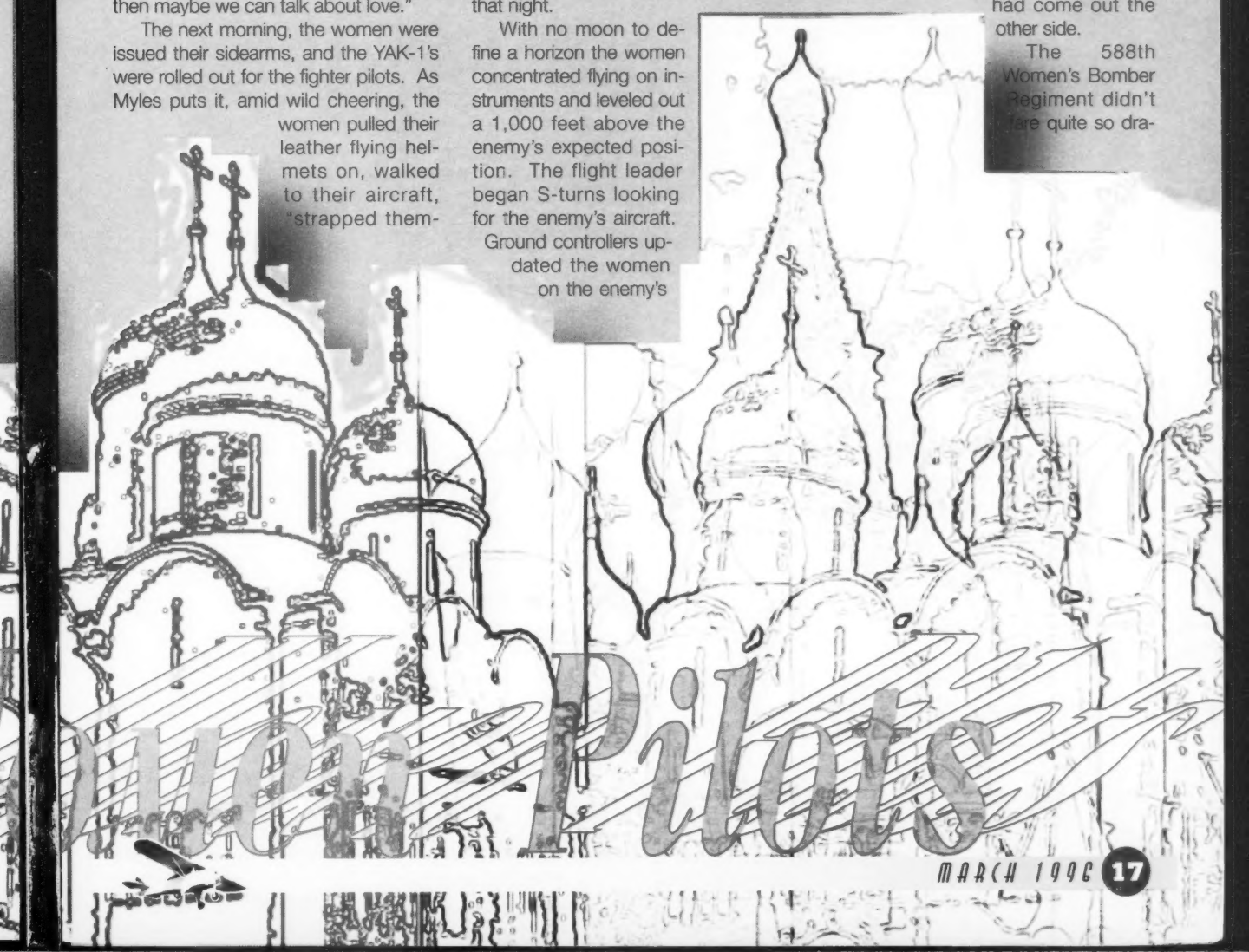
The 586th Women's Fighter Regiment was stationed at Saratov, on the Volga River north of Stalingrad, to protect railways and munitions factories. Their second night there, they got their first call to combat. More than 20 German bombers were on their way to Saratov, and the women donned their parachutes and ran out to their planes. Each one of them was nervous; whether the Luftwaffe was or not is not known. Indeed, it is not certain that the German pilots knew at that time they would be facing women in fighter aircraft as they approached Saratov that night.

With no moon to define a horizon the women concentrated flying on instruments and leveled out a 1,000 feet above the enemy's expected position. The flight leader began S-turns looking for the enemy's aircraft. Ground controllers updated the women on the enemy's position, but the aircraft's radios were receive only; the women had to trust what information they were given since they couldn't call back with questions or requests.

The squadron leader, Galia Boordina, believed her calculations and the radio reports meant that German bombers were two minutes from Saratov, and she also believed that she had to be on top of the bombers. She dived into the night, her guns firing, and charged through the middle of the bombers' formation. She pulled up then dived for them again. The German bombers apparently thought this onslaught came from more than one fighter. They jettisoned their bombs short of the target and broke up, heading away from Saratov.

The Women's Fighter Regiment had been through its baptism of fire and had come out the other side.

The 588th Women's Bomber Regiment didn't fare quite so dra-



matically. On their first sortie, their base commander decided to test their mettle. He instructed the YAK fighters sent to escort them to "attack" them. Nervous and anxious about their first mission, the women mistook their own aircraft for Messerschmidts and panicked, breaking formation and scattering. This is what every fighter pilot hopes for—single targets away from the pack and easy pickings. Many of the women immediately headed back to base, some soon realizing from radio chatter what had happened. Others demonstrated some serious nap of the earth flying, scudding low enough to be hidden behind hedgerows! When they all returned to base they were embarrassed and humiliated at their behavior. Despite the praise for their flying skills, they were determined to do better the next time. The very next night they scored big hits on the German positions they were sent to bomb, flying through flak and trusting their fighter escorts to dispense with the Messerschmidts.

The women of the 588th also came up with a unique strategy to deal with the German "flak circuses." In an area they controlled or were protecting, the Germans would assemble as many as two dozen 37mm antiaircraft guns in concentric circles around a target. The gunners would be supported by a searchlight platoon. Many Soviet bomber pilots, true to their unyielding strategy, flew straight in, alit by searchlights and pounded by ring after ring of antiaircraft fire; they seldom made it to the target. After several casualties among the women bomber pilots, the survivors decided to break out of the Soviet strategy mold. The women decided to fly in groups of three instead of two; two would fly headlong toward the target while one held back. When the front two were first hit by the searchlights, they would go into wild evasive action, and the searchlight operators would try to follow them. The third plane would slip in under their cover and deliver her load. The women would later describe the tension of waiting for the searchlight to hit them, how they ignored the sound of flak tearing through the wings and fuselage, and their worry about their friends who had been sent in to draw the Germans' fire. But, in the end, they seemed to shrug the tactic off in a pragmatic military manner. "It worked," they said.

As the bomber regiments delivered their ordinance, the women fighter pilots began to rack up their kills along with their male counterparts. In September of 1942, the Junkers Ju-88 became the first German bomber to be shot down by a woman pilot. The most skillful women fighter pilots were eventually integrated into male units and became wingmen for each other. The sexism was still rampant, however. Some male pilots refused to fly in aircraft the women mechanics maintained. One base commander refused to allow any women fighter pilots in his group until one male pilot, enamored of one of the women, convinced him.

The object of the male pilot's affections, Lily Litvak, became legendary as the "White Rose of Stalingrad." Said to be strikingly beautiful, Lily was impatient with anyone who couldn't see beyond her physical endowments but proved herself over and over again in the air as a flight leader and wingman for the besotted pilot, with whom she eventually fell in love. On each side of her cockpit she painted a white rose—hence the nickname—and so fond was she of flowers, she often picked wildflowers and carried them aloft on her missions. The Germans quickly learned who she was as well, and when her familiar YAK with the white rose incongruously emblazoned on its sides came into view, they alerted each other and stayed out of her way. (One captured German pilot refused to believe he'd been shot down by a woman until Lily gave him a blow by blow account of their dogfight.) She shunned publicity and put off a Soviet propagandist who came to her base to do a film on her; she simply wanted to fight Germans and free her country.

Lily was well on her way to becoming an ace. After a year of air combat and surviving at least three shootdowns herself, she had scored 12 kills. But her notoriety was to be her downfall. On one mission in July 1943 eight Messerschmidts concentrated solely on Lily, and it took all eight of them to bring down the "White Rose of Stalingrad." Her body and aircraft were never found, but a marble monument, with 12 gold stars—one for each enemy plane she shot down—was erected in her memory. She was a 22-year-old combat veteran when she died.

The examples of bravery and determination given here are but a few of the many stories and adventures experienced by the *Nachthexen*. Valerie Moolman, author of *Women Aloft*, says, "Examples of extreme courage were almost the rule." The Soviet women bomber pilots earned 23 Hero of the Soviet Union medals and dozens of Orders of the Red Banner. Two women bomber pilots—Katya Ryabova (who flew 890 sorties) and Nadya Popova—in one night raided the Germans 18 times. The bomber pilots flew more than 24,000 sorties and delivered 23,000 tons of bombs—pretty remarkable considering the poor old PO-2 could only carry two bombs totaling less than a ton per sortie. The fighter pilots of the 586th participated in more than 125 separate air battles. Most of the women bomber pilots who survived until the end of the war in 1945 had nearly 1,000 missions each. They had served so exemplary throughout the war that they participated in the final onslaught on Berlin—in fact, they weren't going to be kept away.

They had helped to achieve their beloved country's *pobyeda*—victory. And when the war ended, like veterans all over the world, they "returned to their factories and farms," says Moolman. They married the soldiers and pilots they had told to wait until after the war. In spite of the danger and their heavy losses, most of the women later described their combat as the most exciting times of their lives. These women left hearth and home to fight for their country as men have done for millennia. They endured loss of family and homes in their absence, met and lost lovers and husbands, and were wounded and killed in action. Their path to glory and martyrdom was not

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easy (it never is). Soviet military officials then, as U.S. military officials now, questioned whether it was strategically or morally appropriate to send women into combat. But the Night Witches proved to themselves and a skeptical country that their gender made no difference in the defense of one's home.

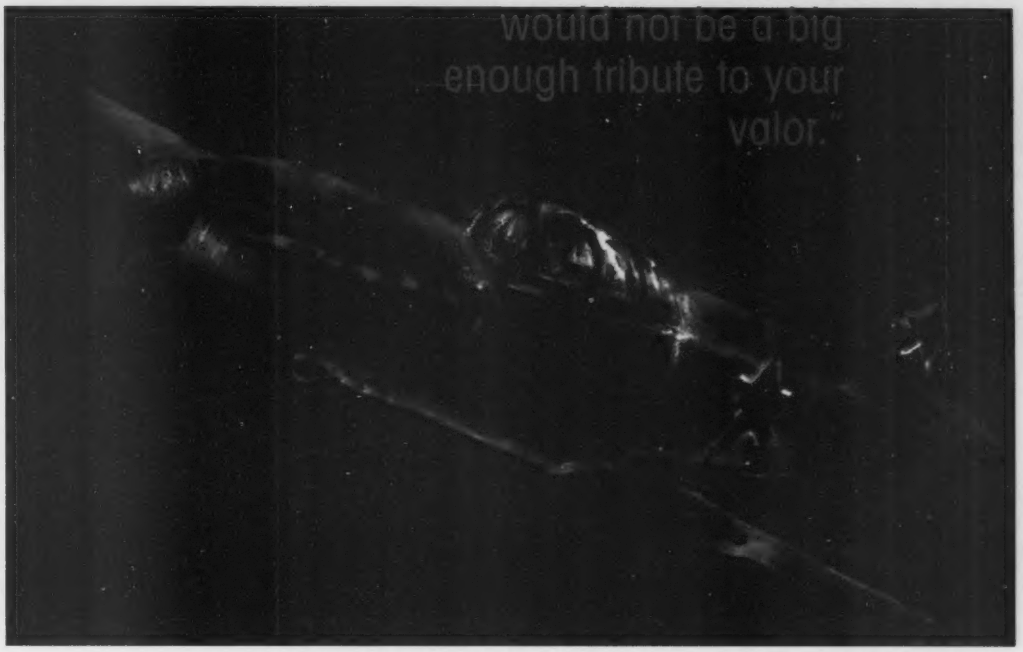
Their names came to be spoken with awe in their homeland as we speak similarly of Yeager and Mitchell. Over the years we would see them and not quite understand who they were—aged, uniformed veterans, their chests heavy with metals, marching in May Day parades through the streets of Moscow. Like the WASP's in America, it was nearly 30 years after their exploits before we here in the U.S. learned of their sacrifice and heroism.

Time has taken its inevitable toll on the *Nachthexen*, though several still live today on their meager pensions. Like the WASP's they can be and are an inspiration to the young women, who could be their granddaughters, who are now learning to fly the world's most sophisticated combat aircraft.

Their grateful nation said to the Night Witches, "Even if we were to place at your feet all the flowers of the earth, they would not be a big enough tribute to your valor."

Flowers for the valor of the Night Witches; for the White Rose of Stalingrad, who fought for her country until her last breath and died inhaling the scent of wildflowers carried aloft.

"Even if we were to place at your feet all the flowers of the earth, they would not be a big enough tribute to your valor."



Artist rendition of Yak-1, flown by Russian women fighter pilots in World War II.

For more detailed information on the Night Witches, see Bruce Myles' book of the same name, published in 1990 by Academy Chicago Publishers, 213 West Institute Place, Chicago, IL 60610. Two volumes of the Time-Life series, "The Epic of Flight" (Women Aloft and The Soviet Air Force in War) are also excellent resources. In addition to these books I researched several other works by Americans and Germans on the Soviet Air Force during World War II and used my conversations with 99's and WASP's who visited Russia a few years ago and met several of the aging women combat pilots. Sadly, the most interesting of the possible memoirs does not exist. Unlike Jackie Cochran and Nancy Love, Marina Raskova could not write about her experiences recruiting and training the world's first women combat pilots. Restless in the classroom, she had asked for and received an assignment to the front. In 1943, the "Winged Sister" was shot down and killed. She received the first Soviet state funeral in wartime, and her ashes are buried in the Kremlin Wall.

One Level of Safety

by Phyllis-Anne Duncan

L to R: David Harrington, Katherine Hakala, FAA Administrator David Hinson, and Secretary of Transportation Federico Peña.

Two weeks before Christmas 1994 a JetStream en route to Raleigh, NC crashed at night while making an ILS approach. All 15 passengers and crew on board perished. Hours later, Secretary of Transportation Federico Peña visited the site, walked amid the broken wreckage and scattered baggage, and determined that more would have to be done by the Federal Aviation Administration (FAA) to prevent families from suffering such losses so close to the holiday season again.

On December 14, 1994 Peña announced the formation of a special team of FAA officials who would, with industry input, establish "one level of safety" for aircraft involved in the transportation of passengers and/or cargo. The regulatory changes this would involve, he further stated, would be issued exactly one year from the date of his announcement.

The news media doubted, senators and congressmen were skeptical, and even veteran FAA employees lifted an eyebrow at the thought of accomplishing such a complex rule change in one year. The coordination process alone for regulatory action had been known to take a year, for pete's sake. How could the agency possibly write, coordinate, rewrite, publish for comment, assess comments, incorporate comments, write a final rule, get concurrence from all the necessary parties from the Secretary of Transportation to the Office of Management and Budget, and publish the final rule in the *Federal Register* all within one year?

Never been done, said some.

Can't be done, said others.

Nevertheless, this is a story with a happy ending in many respects. "One level of safety" is now the rule, and it was accomplished on the exact day promised by Secretary Peña. Not bad for one of those supposedly top heavy bureaucracies everyone wants to get rid of.

Commuter Airline Misconceptions

The general media, because they cannot go into great depth on any particular topic for a 30-minute newscast, have tended to generalize and sometimes bastardize the term, "commuter airline." In spite of the insistence of a local television station in displaying a picture of a Cessna 152 when talking about commuter airlines, commuters in most cases are as sophisticated as their FAR Part 121 siblings. In fact, some commuter operators with new, state-of-the-art aircraft may actually be operating more sophisticated aircraft than air carriers whose fleets consist of 20 to 30 year old aircraft.

An *air carrier* is a commercial operator or company that has been certificated by the FAA under FAR Part 121 or 135 to provide air transportation of passengers and/or cargo. These operators possess an *air carrier certificate* and *operations specifications*, which is a document that describes the conditions, authorizations, and limitations under which the air carrier operates.

Before this past December, FAR Part 121 included the regulations that govern air carriers in multi-engine airplanes with *more than 30 seats or 7,500-pound payload*. As authorized by their operations specifications, FAR Part 121 operations can be *domestic* (scheduled passenger service, generally within the U.S.), *flag* (scheduled passenger service in international operations), or *supplemental* (all cargo and charter operations).

Until December 14, 1995 FAR Part 135 governed air carrier operations in airplanes with *30 or fewer seats and 7,500 pounds or fewer payloads*. This included both single and multi-engine aircraft and all rotorcraft. The types of FAR Part 135 operations, as per their operations specifications, were *com-*

muter (scheduled passenger service), *air taxi* (on demand and all cargo and charter operations), and *split certificate* (a carrier who operates aircraft under both FAR Parts 121 and 135, dependent upon aircraft size, type, and seating capacity). An industry-coined term—*regional air carrier*—refers to a short haul, scheduled carrier who services small and mid-sized communities, generally using turbo-prop and small turbojet aircraft and operating under FAR Part 121 or 135.

Many "commuters" actually operated aircraft with more than 30 seats but considerably fewer than a jumbo jet. Although these air carriers were called commuters they were actually already certificated under FAR Part 121. Some commuter air carriers did operate newer versions of older models of aircraft which originally had fewer than 30 seats. This fact, the existence of split certificates, as well as two sets of operating rules did engender some confusion among the public and the media.

In the 15 years between 1980 and 1995, hours flown by commuters have more than doubled, from just over 1,000,000 hours in 1980 to nearly 2,600,000 hours in l995. For the same period, FAR Part 121 carriers hovered just above or just below 2,000,000 hours. In 1980 commuters carried 9,520,000 passengers; by the end of 1995, they carried nearly 28,000,000. By the year 2000, they will be carrying more than 40,000,000 people. That figure alone, plus what appeared to be an unhealthy accident rate, was enough to put pressure on the FAA to "do something."

Accidents—Numbers Alone Can Be Deceiving

People tend to focus on total numbers of accidents. In the latter half of 1994, for example, there were six fatal air carrier accidents which made tremendous headlines and fueled everything from Congressional hearings to lawsuits to FAA rulemaking. Yet, what was never noticed nor reported widely on was that for the preceding 831 days before the July crash of a B-737 near Pittsburgh, PA, there had been no fatal air carrier accidents in the U.S. Indeed, 1994 had been the second safest year for air carrier operations in history.

To put accident numbers in perspective, we tend to deal in rates—for example, the number of accidents per 100,000 hours of operation. This is a leveler so that we can look at operators who fly many 100,000's of hours and those who fly fewer than that on a somewhat more equal basis. Between 1978 and 1994, the FAR Part 121 accident rate per 100,000 hours was fairly unchanged—less than one accident per 100,000 hours of operation. For that same time period, commuters started out high (more than four per 100,000 hours), dropped dramatically (just over one accident per 100,000 hours in 1983), and continued downward to a point comparable to the FAR Part 121 carriers in 1994.

Another factor, however, is exposure to what is considered the most dangerous portion of flight—takeoff and approach and landing. Commuter carriers, because they operate on shorter legs than FAR Part 121 carriers, are exposed to those "dangerous" segments of flight more often. Even when you look at the accident rates from this perspective, commuter operators still had an accident rate per 100,000 departures comparable to FAR Part 121 carriers.

Why all the fuss, then? Why make changes if commuters are as safe as or safer than major air carriers?

Primarily because the industry has changed. In 1978 when FAR Part 135 was enacted, the rules were perfect for the equipment operators would be using—Beech 19's, DeHavilland *Beavers, Twin Otters*, even 172's, and 182's. Commuters caught on, supplying essential airline service to small communities and rural areas. As populations and towns grew, so did the commuter airlines. Operators needed bigger, faster aircraft, and manufacturers responded.

Even though commuters' reliability and safety improved, it was still a good idea to take a look at a set of rules enacted nearly 20 years before and determine what changes, if any, needed to be made. The public, also—perhaps misled by errors and inadequate communication—began to demand a single level of safety.

Another, more esoteric reason for rule changes at this time may be because, for some reason, aircraft crashes (which kill fewer people each year than those killed in accidents involving animal-drawn vehicles) strike deep into our psyche. Perhaps it is because, innately, many people may still regard the operation of human-manufactured machines in flight as an unnatural act. When airplanes crash we are horrified, indignant, repulsed. Such things are not supposed to happen; we are not supposed to put so many people at one time at risk. Technology is supposed to reduce that risk.

Perhaps, then, we hold aviation to a higher, less realistic standard. We slaughter nearly 50,000 people a year in cars, and we absorb that knowledge with scarcely a blink of the eye; i.e.,

The Commuter Rule Timeline

- December 13, 1994
  Crash of American Eagle Flight 3379 in Raleigh, NC
- December 14, 1994
  FAA commits to Commuter Safety Initiative
- March 24, 1995
  FAA publishes Commuter Rule NPRM Comment period on NPRM ends
- June 27, 1995
  Comment period on NPRM ends
- December 14, 1995
  Final Rule displayed at Federal Register
- December 20, 1995
  Publication of Final Rule and associated rule making projects in the Federal Register
- March 1997
  Complete recertification of affected carriers

Administrator Hinson (top, left) and FAA'ers Hakala and Harrington meet the press after announcing One Level of Safety. (H. Dean Chamberlain photo)

automobile accidents simply happen. Yet, one aircraft accident killing fewer than 100 people will send us in droves back to our cars, increasing our risk of accidental death. Cars are expected to crash; airplanes aren't.

Yet, they do, and the causes are many. Most of them are attributable to some form of human factor. Taking that factor out of aircraft operations is almost impossible to do, so the FAA responds with education, surveillance, and inspection; enforcement action; and, when necessary, regulatory changes.

Advances in technology and training today may make attaining zero accidents—a goal also set forth by the Secretary of Transportation—a possibility. FAA is embarking on changes to itself and to the aviation industry with just that goal in mind.

But zero accidents will come too late for families who will go through many future holidays without their loved ones.

How the FAA conducted complex rulemaking within a year's time and delivered its product on time is the stuff of another, longer story. (Let's just say it helps to have the direct support of the Secretary of Transportation to fall back on.) Suffice it to say it occurred, and "one level of safety" is now part of the FAR.

So, what does that mean?

The Commuter Safety Initative

As of December 14, 1995, all airplanes with 10 or more passenger seats and all turbojets operated in scheduled passenger service must now operate under FAR Part 121. Commuter operations with nine or fewer seats and on demand air taxi airplanes of 30 or fewer seats and all rotorcraft will still operate under FAR Part 135.

To operate under FAR Part 121, the 10-or-more-seat aircraft will have to meet additional standards involving operational and airplane certification and equipment and performance upgrades.

The Commuter Safety Initiative, or the Commuter Rule, as it came to be called over the year of its drafting and enactment, requires the 10-or-more aircraft to comply with all FAR Part 121 operational requirements, i.e.:

- Dispatch requirements and certificated dispatchers
- Age 60 (See the side bar on page 23)
- New flight and duty time proposal (See sidebar on page 24); affected commuter operators will continue to operate under the FAR Part 135 flight and duty time rules until the new flight and duty time rule is finalized
- Manuals and procedures for both flight and ground personnel
- All cabin safety and flight attendant requirements for 20 to 30-seat airplanes (19 or fewer seats, no flight attendant required)
- Maintenance duty limits
- A new training rule (See side bar on page 24)

Also issued with the Commuter Rule is FAR Part 119, which consolidates air carrier certification procedures, provides new definitions, and requires new management and safety officer positions for FAR Part 121 operators.

All new type certifications after March 1995 for aircraft with 10 to 19 seats must meet FAR Part 25 transport category standards. Airplanes in production can be manufactured in the commuter category certification basis with no production time limit, but the airplanes must meet the upgraded equipment requirements. The existing fleet can continue to operate but must eventually meet upgraded equipment requirements.

With some limited exceptions for 10 to 19-seat airplanes, the Commuter Rule requires compliance with the following equipment standards:

- Exterior emergency exit markings
- First aid kits and emergency medical kits
- Wing ice lights
- Weather radar
- Protective breathing equipment

- Locking cockpit doors (20 to 30-seat aircraft only)
- Flight attendant portable and first aid oxygen
- Distance measuring equipment
- Lavatory fire protection
- Pitot heat indication system
- Landing gear aural warning system
- Additional life rafts
- Additional flashlights

For 10 to 19-seat aircraft some equipment was excepted if their systems were "functionally equivalent" to FAR Part 121. For example, in 10 to 19-seat aircraft, passengers are no more than four feet away from any exit; consequently, floor proximity lighting is not required. Because no flight attendant is required on 10 to 19-seat aircraft, the requirement for a locking cockpit door was excepted. This is so that the crew can easily conduct the safety briefing and see to the safety of the passengers. Other exceptions included no crash ax and other cabin safety equipment and aircraft certification items that would have required a redesign of the aircraft or extensive engineering to retrofit.

Operators of 10 to 30-seat aircraft have 15 months to be recertified under FAR Part 121, but there are extended compliance schedules for certain items, notably installing passenger seat cushions that are not flammable, pitot heat protection systems, lavatory fire protection, and a third altitude indicator. Airplanes currently in production will have to be fitted with single-point inertial pilot shoulder harnesses.

Twenty to 30-seat airplanes currently meet all FAR Parts 25 and 121 transport category performance requirements, as do all 10 to 19-seat commuter category airplanes. For older, 10 to 19-seat airplanes there will be a *15-year* phase-in for certain performance requirements. Older airplanes that cannot meet the FAR Part 121 performance requirements must be phased out of service at the end of that time period. FAA estimates this involves approximately 112 airplanes, among them *Twin Otters* (54), Beech 99's (38), Beech 200's (8), early SA226's (9), and the EMB 110 (3).

Within 90 days after the Commuter Rule's December 20th publication in the Federal Register, operators had to submit plans to the FAA outlining how they would comply with the new regulations.

At a news conference on December 14, 1995 Secretary Peña was joined by FAA Administrator David Hinson, Air Transportation Division Manager David Harrington, and Air Taxi and Commuter Branch Manager Katherine Hakala for the announcement of the "one level of safety." Ms. Hakala was also the project manager for the Commuter Rule. To show industry support of the extensive rule changes, Airline Pilots Association (ALPA) President Randy Babbitt and Regional Airline Association President Walter Coleman answered media questions along with Peña and the FAA.

One major concern was the cost of all these changes to operators who now must be recertified under FAR Part 121. Some had speculated that the costs would be so high that operators would go out of business or would eliminate the smaller aircraft from their fleets. Hundreds of small towns and rural communities would lose national airspace access, detractors said.

The reality is that only 112 older model airplanes will be forced out of service over the next 15 years, and the estimated cost of the Commuter Rule over that same period will be $75,000,000—or 62 cents per passenger in a 10 to 19-seat aircraft, 30 cents per passenger for 20 to 30-seat aircraft.

Said Secretary Peña, "As a consumer, I'll gladly pay 62 cents more to have one level of safety and to have total confidence in the planes I fly on."

Administrator Hinson added, "The Commuter Safety Initiative will be recognized as a bold move in commercial aviation safety. Safety is the fundamental thread running through everything FAA does....It is truly remarkable that exactly one year after Secretary Peña announced this initiative, we are issuing a final rule."

Conclusion

The accident site outside Raleigh is calm now; the wreckage and debris have been removed. One can scarcely discern the accident site, though it remains etched in the minds of many, including a Secretary of Transportation who travels alone and with his young family on commercial aircraft. For a year new grass has grown over the site, erasing the physical signs of the tragedy there. For a year something else grew, too, in fits and starts and not as certain as new grass, but it did mature—a single level of safety.

One level of safety for the 500 million people who fly each year.

THE AGE 60 RULE

Pilots operating under FAR Part 135 were not required to quit flying at age 60 as FAR Part 121 pilots must do. This difference in regulations had to be addressed in order to adhere to the commitment to "one level of safety."

The Commuter Rule effective December 14, 1995 extends the age 60 rule to pilots who had been flying for former FAR Part 135 operators. Former FAR Part 135 pilots who are now over 60 will have four years of continued eligibility before they must retire. This time period seemed sufficient to enable these pilots to obtain other employment and plan for their retirement and also for operators to put new recruitment and training plans together.

Of the 8,000 pilots who will transition from FAR Part 135 to FAR Part 121, 2.5%—approximately 200—are now over 60 years of age.

The majority of comments received on the Commuter Safety Initiative concerned the age 60 rule, and the majority of those age 60 comments advocated leaving the age requirement as is.

The Commuter Safety Initiative Rulemaking Teams

COMMUTER RULE TEAM

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FLIGHT/DUTY/REST NOTICE OF PROPOSED RULEMAKING TEAM

Larry Youngblut, Team Leader

AIR CARRIER TRAINING RULE TEAM

Larry Youngblut, Team Leader

FLIGHT/DUTY/REST NOTICE OF PROPOSED RULEMAKING

The proposed flight/duty/rest rule is an integral part of the Commuter Safety Initiative. The proposed rule seeks to incorporate research findings concerning flight crew member fatigue into a common set of regulations for all types of operations—still in keeping with "one level of safety."

Highlights of the NPRM are:

Based on research conducted by NASA and the DLR-Institute of Aerospace Medicine in Germany, the rule proposes to reduce the number of duty hours (the time a flight crew member is on the job available to fly) from the current 16 hours to 14 hours for two-pilot crews. The crew can fly up to 10 hours during the 14-hour duty period.

Additional duty hours would be permitted only for unexpected operational problems, such as flight delays. In no event could such delays add more than two hours to the pilot's duty day.

The rule proposes that airlines could no longer schedule pilots in advance in a manner that exceeds the duty time.

The rule proposes to increase off-duty rest time from eight hours to 10.

The rule proposes that pilots be given at least one 36 hour off-duty period every seven days. Current rules call for a 24-hour off-duty period.

The NPRM was published in the December 20, 1995 issue of the Federal Register.

AIR CARRIER TRAINING RULE

Also issued on December 14, 1995, the Air Carrier Training Rule will increase training requirements for all pilots of scheduled passenger operations in airplanes with 10 seats or more. This new rule complements the Commuter Rule by requiring flight crew members of scheduled passenger operations involving aircraft with 10 or more seat to receive training and qualifications comparable to crew members of the larger air carriers.

The new rule mandates Crew Resource Management (CRM) training for both crew members and flight dispatchers. Under CRM all members of the crew—from the captain to the flight attendant and dispatchers—are trained to share information that may be useful in making decisions about the flight. Before this new rule, training regulations did not incorporate recent knowledge about the importance of using the entire crew's and dispatchers' skills in communications, decision-making, leadership, and management.

The new rule also allows scheduled operators using aircraft with 10 or more seats to take advantage of sophisticated aircraft simulator training technologies that had been available only to pilots of major air carriers. Simulators allow pilots to practice dealing with situations and emergencies too dangerous to practice in actual flight, i.e., windshear.

Continued from Page 13

Commercial Glider Pilot–A Dream Come True

Because of the need for help in launching or recovering a glider, a glider pilot needs friends to help him or her enjoy the sport. Soaring is truly a team effort among glider pilots, friends, or families. In many cases, it is a club activity.

This point was brought home to me as I did my homework in preparing to write an article on the requirements for adding a glider rating to a power aircraft certificate. The FAA glider certification regulations were easy to understand. The problem in writing the article was I lacked recent, first hand experience flying gliders.

Then late one afternoon in September as I prepared for a trip the next day to the FAA Safety Center in Lakeland, FL, to attend a seaplane safety seminar, I happened to start paging through the September issue of *SOARING*, the magazine published by The Soaring Society of America (SSA). I was looking at the different types of gliders shown, checking the safety information, and generally thinking how I was going to do a spring glider safety article. But if the truth be known, I was also starting to think about possibly doing some seaplane refresher training when I saw a color advertisement showing a nice looking glider flying over a Florida gliderport with an address that seemed familiar.

As soon as I saw the address, I wondered if that was the place where Obie had said his son was flying. I gave the ad a second look. I checked and it was. So I thought since I was going to be relatively close to the gliderport (It's about 30 some miles north of Lakeland and about an equal distance west of Orlando) I might stop and take some photographs for our proposed glider article.

I did stop, and, as the expression goes, the rest is history. Yes, I did attend the seaplane seminar, but the bad news was I did not get to do any seaplane recurrency training because, after 18 years, I went off to complete my glider rating.

I had stopped at the gliderport near Clermont on my way to Lakeland to check out the place, and I decided to come back and learn how to fly gliders. The fact that Obie trusted his son's training to the gliderport was an important factor in my decision.

Although there are many great glider training sites throughout the U.S., and SSA can provide anyone with a list of training facilities across the nation, this one was ideal for me. It's in Florida. It's about an hour from my favorite seaplane training site in Winter Haven. And it's located between areas where I have friends.

More importantly, the timing was right. I was mentally ready to learn how to fly gliders. At that moment, I had both a professional and personal curiosity that could only be satisfied by learning how to soar. So I broke out the old credit card and scheduled a demonstration lesson.

Designed and built as a gliderport, Seminole-Lake Gliderport is located near the western edge of Orlando's Class B airspace and within its 30-mile Mode C Veil. It is also out of the way of most aircraft traffic. Since few gliders have electrical systems, most gliders are exempt from the FAA's transponder rule so being out of the way of other aircraft is ideal. (Incidentally, gliders have the right of way over most powered aircraft. If you don't remember the aircraft right of way rules, now might be a good time to review them (FAR § 91.113).)

There are only a few homes in the area, so noise from the tow aircraft is not a problem. Those who do live on the gliderport are themselves glider pilots with their gliders hangared in their "garages." So the location gives the gliderport the best of many worlds. It is a good neighbor, it's somewhat isolated, and Florida's summer heat provides good thermal soaring. Although it lacks the mountain wave flying that some western glider pilots can take advantage of, it is a good training site.

Like any type of training, if you can call in advance and order the course material and study it before you arrive at the training site, your training will go faster. It also allows you to gain more knowledge from the instructors because, since they don't have to teach you the very basics, they can spend more time on advanced information or answering your questions. Plus, it might even save you money.

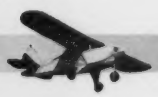
I digress, but I digress with a purpose.

The fact is a glider add-on rating is very easy for any certificated power airplane pilot to obtain and is relatively inexpensive. A typical glider private pilot add-on rating will cost about $600 to $800 dollars. Commercial add-on ratings will cost more because of the additional required training.

Like everything else in flying, total cost depends both upon what you are flying as well as where you are flying. Training books, travel, lodging, or personal costs will add to the bill. The representative cost is for the average, current, and proficient pilot. Your costs and training time may vary depending upon your flight skills, proficiency, and willingness to work. Your check ride may cost extra.

As a certificated airplane pilot, I didn't have to take a computerized knowledge test (the old written test). I did have to take a pre-solo written test on the glider I was training in. Like countless other glider trainees, I did most of my training in the venerable old Schweizer 2-33. Slow, chunky, and made of metal and fabric, the 2-33 is an American classic. Probably more Americans have learned how to fly gliders in 2-33's than any other. It not only is very rugged, it is one of the most forgiving aircraft anyone would want to fly. For all of these reasons, it is a natural for teens to learn to fly in.

I think teens or other non-pilots will find a glider easier to fly than certificated pilots, and that is because of what we have all been taught as power pilots. For example, we are taught that when the engine suddenly goes quiet,



we have a problem. We are even taught "emergency" procedures to try and restart the engine as we look for a suitable off-airport landing area. The fact that airplanes tend to go downhill when the engine stops is why we are taught to continually look for a suitable landing site as we fly along our intended route. Because of our training, for most of us, noise is great. It means we have power and that we are flying. Silence is bad. It means we have no engine and must land.

Not so in gliders. Gliders are normally quiet. They can also gain altitude. Yet old habits are hard to break. On my most recent "first" glider instructional flight, I had the same thoughts as I did 18 years earlier about flying something without an engine. It took me a moment to decide if I really wanted to reach out and pull the red tow rope release knob in the glider. After all, it is red for a reason. My thoughts went something like this, "Hey, dummy, do you really want to reach out and pull the knob that will release your connection to the tow plane? If you do, how are you going to get home? The tow plane has an engine. You don't."

Yes? No? Maybe? I really thought about it.

But pull it I did. What else could I do? I had an instructor in the back seat, and I didn't want him to wonder what kind of dummy he had in the front seat who couldn't pull a simple knob. If kids can do it, I can too. Besides, I am an FAA-certificated "a-vi-a-tor and instruc-tor." Working for the FAA didn't help either. So I took a breath and pulled.

As the tow plane quickly pulled away, I watched the tow rope snaking its way behind the tow plane as the Piper *Pawnee* made a diving left turn away from us for separation. We made a right turn for more separation.

As we turned, the glider's deceleration from its towing speed to its cruising speed took a moment to get used to. There was also a noticeable reduction in wind noise around the side-hinged canopy. It is amazing how loud silence can be. Then, since the 2-33's cruising speed is close to the stalling speed of the aircraft I normally fly, my first thought as we slowed was, I am going to stall this puppy before I even learn how to fly it. But we didn't stall, and I rapidly discovered that an aircraft can really fly this slowly. Once I adjusted to the slower pace and how to correct for the adverse yaw caused by its long wings, flying the glider became fun. In fact, it became a lot of fun.

Then in the midst of all this fun, I had another thought: "How am I going to land this thing? What am I going to do, if I blow the approach? Obviously, I can't go around. I don't have an engine. I don't even have a carb heat knob to worry about pulling on downwind." I did have a dive brake control that I got to check on downwind. Dive brakes are sort of like throttles, in for more speed, out for less. But dive brakes are only designed to slow you down and control your descent angle.

They can't help you go around.

And when you don't have an engine, it is amazing how tall Florida pine trees can look to a rookie glider pilot flying inbound thinking about his one-shot glider landing. The trees, however, made me pay even more attention to my instructor explaining proper gliderport traffic pattern procedures that included being over the gliderport's initial point (IP) at 1,000 feet AGL.

From the IP, we descended for a standard 800-foot downwind traffic pattern entry. The need for a proper and safe gliderport IP arrival altitude followed by a proper traffic pattern downwind entry and a good approach and landing give new meaning to pilot judgement.

These are the types of thoughts I don't think non-power pilots would have if his or her first flight training experience is in a glider. To them, everything they see or do during their first glider flights is normal. Not having to worry about an engine allows new glider students to concentrate on flying their approach without inside the cockpit distractions.

Nor would glider-only students be bothered by the apparent lack of instruments, radios, navigation equipment, and all of the other things that are normally installed in a powered aircraft cockpit. Although the more sophisticated, high performance gliders, many with European names, may have flaps, landing gear, an engine, water ballast, and com-nav gear on board, many basic gliders such as the 2-33 may have only a basic airspeed, altimeter, variometer, and compass installed along with a 10 cent piece of yarn attached to the forward fuselage for turn coordination.

If you are wondering why a short piece of yarn or string might be attached to the canopy or fuselage, it provides basic slip and skid information for coordinated flight. It took me a while to decide on which end of the yarn I had to "step on." It is not as simple as the admonition we use in airplane training of telling students to "step on the ball" to keep it between the lines to make coordinated turns.

Basic gliders are true stick and rudder aircraft. They also teach the need for coordinated flight because the lack of it increases your minimum sink rate, which means you lose altitude faster, or the lack of it reduces the amount of altitude you might gain in a thermal. In a weak thermal, uncoordinated flight might make the difference between gaining or losing altitude.

Terms like minimum sink rate, best gliding speed, initial point or IP, glide ratio, L/D (pronounced L over D), thermals, wind shear, mountain wave, and many more such soaring-related terms make you realize that like any other type of flying, soaring has its own vocabulary. It also makes you learn more about weather and how it produces different forms of lift, the importance of altitude planning, how to plan cross-country flights based upon altitude rather than fuel loading, and other such glider concepts. These are the types of things that many power pilots may take for granted because they have one or more engines attached to their aircraft.

Failure to do your flight planning in soaring may mean you walk home. The good thing is gliders are built stronger than most airplanes in case you do have to land off gliderport or airport, and most gliders are made to take apart so you can trailer them home if you land afield. This also means you will be trained and tested on how to

take your glider apart and reassemble it, safely.

And if you think you can't fly gliders beyond the traffic pattern at your local airport or gliderport, it is amazing how many miles traveled (hundreds), hours aloft (many), and amount of altitude gained (tens of thousands of feet) good glider pilots have demonstrated in capturing various soaring records. On the east coast, many glider pilots have soared the Appalachians from Pennsylvania to Tennessee and back again in a day, non-stop. The piloting challenge is there, and the question becomes whether you are a good enough pilot to meet the challenge in an aircraft without an engine. Many are.

As a certificated airplane pilot, you already should have 40 hours of flight time in powered aircraft. You need only 10 solo glider flights during which 360 degree turns were made as outlined in FAR § 61.115(c) to meet the aeronautical experience to take the glider private pilot practical test. (Commercial applicants must have a minimum of 20 solo flights.) The rule does not specify how long those solo flights have to be.

Although longer is better, I can guarantee you some of your flights will be measured in single digit minutes. Simulated rope break training at 200 feet altitude above the ground does not take a lot of time for you to make a 180 degree turn and land downwind. From the beginning of your takeoff roll to coming to a stop after your landing flare may only take a couple of minutes. For example, one of my check ride flights—it took three flights to complete the checkride—was a simulated rope break at 200 feet altitude followed by a 180 degree turn and downwind landing. Total time logged for that flight was three minutes. My cockpit preflight check took longer.

In addition to meeting the FAR solo requirements for glider students, certificated airplane pilots seeking a private glider pilot add-on rating must also meet the flight proficiency requirements of FAR § 61.107.

All glider pilot applicants must meet the aeronautical knowledge requirements of FAR § 61.105. The good news is certificated airplane pilots don't have to take a glider knowledge test. Everyone has to take a pre-solo written test on the glider you will solo just like any pre-solo student pilot.

An important part of anyone's flight training regardless of type of aircraft flown is the appropriate FAA Practical Test Standard (PTS). The PTS outlines the knowledge and practical skills areas you will be tested on during your certification check ride. Every instructor should ensure that student pilots have a copy of the appropriate PTS and that they use it for both study purposes and to make sure the students are being trained to the standards outlined in the PTS. It also lists the degree of accuracy you must demonstrate to pass the appropriate check ride.

For the glider check ride, you will be tested in flight and/or orally on the safe operation and flying of the glider; its various speeds; its critical flight data, safety issues, emergency procedures, and pilot signals; flight planning; and how to assemble and disassemble the glider; and on such basic flying techniques as stalls, flight at slow airspeeds, and steep turns and spirals in both directions. (Please note, these are only a few of the areas and maneuvers you will be tested on.) For example, private glider pilot applicants must be able to make an accuracy approach and land within 200 feet of a line or mark. Commercial glider applicants must land within 100 feet of a line or mark as well as meeting additional solo and training requirements.

Yes, you will have to do your homework. Do you know or remember anything about the term "adiabatic rate" or how to compute a Thermal Index? Do you know how to tell if a cloud is developing lift beneath it? Do you know how to compute your out and return altitude requirements for a cross-country flight? If not, you will have to learn and understand the significance of these terms as well as many others as part of your glider training.

The challenge is there for those willing to learn something new, and the rewards are worth the effort. Soaring is not only for the birds.

It's for you.

The Soaring Society of America

SSA is the U.S. membership organization based in Hobbs, NM, that coordinates U.S. soaring competition and record keeping within the United States and represents U.S. soaring interests both within the U.S. and internationally. Founded as a non-profit association in 1932, it works very closely with the FAA in promoting soaring safety as well as developing training and safety guidelines for soaring in the United States. As a Division of the National Aeronautics Association, the SSA oversees state and national records and awards soaring proficiency badges.

Readers can contact the SSA for additional soaring information by writing: The Soaring Society of America, P.O. Box E, Hobbs, NM 88241. The telephone number is 505-392-1177. The FAX number is 505-392-8154.

• Authorized Flight Instructors

An article appearing in the September 1995 issue by Mr. Bill Belanger (The Check Ride) raised some questions in my mind about his understanding of the term "authorized instructor." His article relates how a student going for an instrument rating failed the test because of "Checkitis" but the alarming statement was that the student had received his instrument cross-country training from an instructor that did not hold an instrument authorization on his flight instructor certificate. His explanation was that it was legal because only 15 hours of instruction need be given by an instrument instructor.

If Mr. Belanger would take the time to refer to the FAR § 61.65(c)(4), he would see the magic words "authorized instructor" as a requirement for the crosscountry training also.

As a Designated Pilot Examiner, I review the qualifications of each and every applicant that appears before me for certification. This applicant would have been sent home post haste.

Gerald L. Pennington
Las Vegas, NV

Thanks for reminding everyone of the "authorized instructor" (certificated flight instructor-instrument, CFII) requirement. You are correct that the crosscountry must also have been given by an "authorized flight instructor" as provided in FAR § 61.65(e)(3).

• Blood Oxygen

I write in amplification to your response to Mr. Faber in the May-June 1995 issue, in which you deal with his question about the effects of O.A.T. on the need for supplemental oxygen. Although your response was obviously limited by the space available to you for the column, density altitude does have a small, but significant, effect on the amount of oxygen, expressed as its partial pressure, in the air in one's lungs.

I present below the results of my musings on this matter, which are based on the following assumptions:

A. Regardless of the O.A.T., the air in the lungs is at 37° C;

B. Lung air is saturated with water vapor (at a partial pressure of about 50 mmHg at 37° C, which lowers the partial pressures of the other gasses proportionately);

C. Pressure altitude is 12,500 feet in all cases.

Using my trusty Saunders SC-3B flight calculator, the Handbook of Physics and Chemistry, and a computer simulation of human physiology used in medical schools, Human, I derived the data in the attached table.

First, the data clearly show, "High to low, look out below" for O.A.T.

As you can see, the partial pressure (pO2=true oxygen "concentration") of the air inspired into the lung, hydrated and raised to body temperature, varies from 94 to 81 mmHg. This is a small effect, but it is significant.

Much more important, however, is the fact that the body has absolutely no trouble delivering adequate oxygen to the tissues at any of these low pO_2's. Even though the oxygen content (in ml O_2/ml blood) of arterial blood drops, the arterial/venous difference (a good measure of O_2 delivery to the tissues) stays nearly constant and changes in the output of the heart and breathing rate are more than adequate to keep oxygen delivery to the tissues constant (see "Theoretical O_2 consumption" in the table).

The real reason that we need supplemental oxygen after 30 minutes at or above 12,500 feet and all the time above 14,000 feet is that our breathing rates increase after about 10 minutes at these altitudes (see "Ventilation volume" in the table. This keeps oxygen delivery to the tissues normal, but it also causes us to lose carbon dioxide and bicarbonate ions from our blood. That is, we "blow off" CO_2. This, in turn, raises blood pH (=lowers the acidity), a condition called "respiratory alkalosis." Our breathing rate is controlled primarily by a center in the brainstem which increases respiratory rate when our blood gets acidic (pH<7.4) and decreases it when our blood gets alkaline (pH>7.4). Thus, when blood pH gets too high because of our more rapid breathing at altitude (this is controlled by oxygen receptors in our carotid arteries), our breathing rate is then depressed by the brainstem respiratory center and only then do we slowly start to feel the effects of hypoxia, eventually passing out if we are at a high enough altitude. As you probably know, this is a very subtle process which slowly affects a pilot's judgement and, thus, is very dangerous. So, the supplemental oxygen just keeps us breathing at near sea level rates and we don't "blow off" carbon dioxide, get alkalotic, or pass out.

Charles W. Holliday, PhD.
Associate Professor of Biology
Lafayette College, Easton, PA

Thanks for your information. This should answer many questions about oxygen usage at altitude. Everyone should recheck FAR § 91.211, Supplemental Oxygen.

Blood Alcohol Table

(°C) O.A.T.	Density Alt	True Alt	Barom Press (mmHg)	pO_2 of air inspired into lung	O_2 art blood (ml/l)	O_2 vein blood (ml/l)	A-V diff	Theoretical O_2 consump after 30 min	Blood pH at 30 min	Ventilation volume at 10 min
-50	7500	10600	500	94	0.184	0.138	0.046	247ml/min	7.48	11.0 lit/min
-40	8600	11000	495	92	0.183	0.138	0.045	248	7.49	11.2
-30	10000	11500	490	90	0.182	0.137	0.045	249	7.5	11.3
-20	11100	12000	480	88	0.181	0.136	0.045	249	7.51	11.5
-10	12500	12400	470	86	0.18	0.136	0.044	244	7.51	11.9
0	13800	12900	460	84	0.18	0.135	0.045	250	7.52	12.1
10	14800	13400	450	83	0.178	0.133	0.045	251	7.52	12.4
20	16000	13800	440	81	0.177	0.133	0.044	246	7.52	12.7
Sea Level	**0**	**0**	**760**	**150***	**0.194**	**0.148**	**0.046**	**251**	**7.41**	**5.7**

* formula (760-50) x .21

• Private Pilots and Cost Sharing

Could you please clarify FAR § 61.118(b), which states that a private pilot may share the operating expenses of a flight with his passengers. Specifically, what costs are included under the umbrella of "operating expenses"? Fuel and oil costs, it would seem, are clearly included, but what about necessary reserves for the maintenance and repair (overhaul reserves, avionics repairs, etc.) which result directly from the incremental use of the aircraft?

Could you also clarify the FAR as it applies to renter pilots? In the case, the expenses incurred are the total rental fees, not all of which represent fuel and oil costs, but which do represent out of pocket expenses to the pilot.

Robert Checchio
Dunellen, NJ

A private pilot may fair share the direct operating costs of a flight such as fuel, oil, landing, and tie-down fees. Indirect costs such as maintenance reserves, insurance, depreciation, interest, etc., cannot be shared with passengers. Private pilots must ensure that the flight is not an illegal commercial operation.

The FAA has interpreted FAR § 61.118(b) so that the only allowable share-the-cost operations are those which are bona fide, i.e., joint ventures for a common purpose with expenses being defrayed by all passengers and the pilot. Nor does FAR § 61.118 permit pilots who want to build up time toward their commercial pilot certificates to carry expense-sharing passengers to a destination at which they have no particular business. The cost-sharing passengers are only incidental to the flight. The cost-sharing passengers cannot be the reason for the flight.

Private pilots must also equally share the authorized expenses. For example, private pilots cannot contribute their "flight skills" as their share of the flight costs. This would again make the flight an illegal commercial flight. Even if the pilot bears an equal share of the expenses with the passengers and indeed has a reason to fly to a particular destination, another problem arises. If passengers would be solicited for flights from a broad segment of the general public, the pilot carrying paying passengers would probably be engaged in common carriage. This means that each pilot would become an air carrier subject to the certification and operating rules of FAR Part 135.

Rental pilots may fair-share the total cost of a rental flight if the flight meets the conditions of the regulation.

• Medical Addendum

The April 1995 FAA Aviation News answered a FlightForum medical certification question by saying an initial certificated flight instructor (CFI) applicant had to have a second class medical certificate to take the initial CFI practical test. The published answer was based upon an old FAA requirement that an initial CFI applicant had to hold and meet the requirements of a commercial pilot, which includes having a second class medical certificate. There has been a change in policy.

An initial CFI appiicant or former CFI seeking reinstatement needs only a third class medical certificate to take the initial CFI practical test. This requirement is outlined in Change 10 to the General Aviation Operations Inspector's Handbook, FAA Order 8700.1, on page 11-3.

• Monocular Vision

Sigh, the May-June 1995 MedicalSTUFF article, "One Eye...or Two," brought tears to my two good eyes. May I express my gratitude to Drs. Wick and Tucker. I have lived secretly with monocular vision flying since receiving my private license in 1968. My first obstacle appeared when my daughter and I applied for our student medicals. The doctor had little experience with third class physicals. He passed my 14 year old daughter but refused mine. He said I would have to be examined by a specialist at an FAA regional center. Our flight instructor told me to go to a different examiner who passed me without a hitch.

I am now 75 and still legal. I would like to mention two things which I think are important.

One is to remember that each eye has a "blind spot" that is covered by the other eye. I am fortunate for that even though my right eye does not focus in sync with my left eye and mental vision is mostly repressed, I do not have a blind spot or peripheral sight problems in that eye. My problem is called "lazy eye" which I was born with, and I would hate to think of flying or driving a car with it alone in case of dust or injury in my "good" left eye.

The second thing is that a person with my condition must learn and never forget that when approaching a strange field to get a perspective of distance by looking for clues such as buildings or cars or whatever, and not concentrate only on the runway. For example, in my early days, I flew to a field with a very narrow and long runway and bounced a Piper Colt about 2-3 feet into the air on touchdown. That was the last time I did that.

Name Withheld
Norridge, IL

Thanks for your comments. We hope at some point you explained your problem to your medical examiner so that appropriate advice or help could be offered.

Your comments on the importance of vision and using the size of known objects as landing cues are as important to pilots with binocular vision as they are to you. Your advice and concern about the risks of an eye injury also applies to every pilot who wears corrective lenses in flight. Pilots requiring corrective lenses should always have a second pair of glasses within reach just in case they might someday break or lose their glasses or contacts. For that matter, how many pilots keep an extra pair of corrective lenses in their car, truck, or travel bag so they can drive home or enjoy their trip in case they break their glasses or tear a contact lens?

The Bird Strike article in the January-February 1996 issue is another reason why it is important to have a second pair of glasses within reach. A broken canopy can even cause a problem for those with perfect vision.

NEW CAP NATIONAL CALL SIGN

In a letter dated October 2, 1995, the FAA issued the United States Air Force Auxiliary-Civil Air Patrol (CAP, pronounced C-A-P) its own national aircraft call sign. The action came after CAP National Headquarters petitioned the FAA for a national call sign like those requested and used by the airlines with FAA approval. The new national CAP radiotelephony designator is "CAP-FLIGHT." The new designator will be used only for aircraft flying in a CAP assigned capacity for air/ground communications with air traffic control.

CAP's new three-letter aircraft identifier is "CPF." Although CAP had hoped to receive its initials, CAP, that three-letter designator is held by an air carrier. The new "CPF" three-letter aircraft identifier will be used with CAP designated aircraft identification numbers.

Specific implementation instructions will be issued to all CAP units by CAP National Headquarters. FAA air traffic facilities will be notified of the new national call sign and aircraft designator through appropriate FAA channels.

The Civil Air Patrol is the official auxiliary of the Air Force. As a volunteer organization of more than 52,000 members, CAP supports the Air Force's designated national search and rescue (SAR) role within the United States by conducting, at the Air Force's direction, more than 85 percent of the airborne search and rescue operations conducted annually in the United States. In addition to its SAR role, CAP provides support to other federal, state, and local government agencies as authorized by regulation. One such example is CAP's airborne and communications support it can provide governments in times of natural disasters such as the recent Mid-West floods and the various hurricanes that have hit the United States in recent years.

One of CAP's most important missions is its Aerospace Education program for young Americans. Currently, more than 19,000 cadets participate in select CAP activities.

More than 32,000 adults—senior members—support CAP humanitarian missions. To find out how you can volunteer to support CAP, contact your local CAP squadron or CAP's National Headquarters at Maxwell Air Force Base, Alabama. Volunteers can call the national 1-800-FLY-2330 telephone number and leave their names and telephone number on the recorder. Someone will call you back and send you a CAP information kit on how you, too, can become a CAP volunteer.

DOUGLAS "WRONG WAY" CORRIGAN DIES AT 88

The only pilot to become an international hero for getting lost, Douglas Corrigan, died December 9, 1995 at the age of 88. In 1938 Corrigan took off for a trip from New York to California but landed instead in Baldonnel, near Dublin, Ireland.

Born in Texas in 1907, Corrigan moved to Los Angeles, CA in 1922, where he became interested in flying. He was an aircraft mechanic and was the person who pulled the chocks on the Spirit of St. Louis when it was flown from San Diego to New York before Charles Lindbergh's historic flight. Lindbergh was a lifelong hero of Corrigan's.

Corrigan learned to fly in 1935 and paid $310 for a secondhand plane—a Curtiss *Robin*. Corrigan wanted to use the *Robin* to become the 11th person to match Lindbergh's solo flight across the Atlantic.

Corrigan's fame came from his navigational mistake; however, some have always questioned whether it was a true mistake. Even though Corrigan flew his plane from Long Beach, CA to New York—a distance longer than the planned flight to Europe—the U.S. Department of Commerce (precursor to the FAA) denied Corrigan permission to fly the Atlantic because of the rickety condition of the airplane. After this refusal, on July 17, 1938 Corrigan announced he was taking off from Floyd Bennett Field for Long Beach; yet, the *Robin* was crammed with enough fuel for a 40-hour, non-stop flight. On takeoff, the *Robin*'s nose was pointed due east.

Twenty-nine hours later, after flying over a body of water that had claimed many lives from the sea and air in an aircraft whose door was held shut with bailing wire, Corrigan landed in Ireland.

Corrigan explained that one of his two compasses had failed completely and that the other malfunctioned, coincidentally pointing 180 degrees opposite the course to Long Beach. Throughout his life, Corrigan always claimed surprise at finding himself on the ground in Ireland.

Because Corrigan had no passport or permission to land, he was detained by authorities, who disassembled his airplane and shipped it back to the U.S. to prevent a repeat of his mistake. On his return to New York, Corrigan's ticker tape parade was larger than Lindbergh's. The country accepted him as a hero.

Corrigan returned in the *Robin* to California to live. Hollywood then made "The Flying Irishman" in 1939 to commemorate the flight, and it starred Corrigan himself. A wave of products—backwards running watches among them—capitalized on his name, which became associated with misdirection.

In World War II, the normally reticent Corrigan flew as a test pilot for Douglas Aircraft. In 1951, he moved to Santa Ana, CA and grew oranges. After decades of being in storage boxes in his garage, the little *Robin* was reassembled by Corrigan in 1988 for display at a nearby airport. During the activity surrounding the 50th anniversary of his "mistake," Corrigan was questioned again about his infamous flight. He insisted he had made a mistake, but when queried whether it was an honest mistake, he replied, "I was never really too honest, you know."

Corrigan is survived by his sons Douglas and Harry Corrigan and a sister Evelyn. A third son died in a plane crash in California, and Corrigan's wife died in 1966.

Hopefully, the compasses were all working on his final flight.

Dictionary of U.S. Navy Aviation Squadrons Available

The Superintendent of Documents, U.S. Government Printing Office (GPO), has announced the publication and sale of the history of every Navy squadron formed since the post-World War I beginning of the squadron concept. The new history, the first in a series published by the Naval Historical Center, is available in both casebound book form as well as "easy-to-search" CD-ROM.

Volume 1, the Dictionary of American Naval History Squadrons: The History covers the attack and strike fighter communities and includes attack squadrons (VA), heavy attack squadrons (VAH), tactical aerial refueling squadrons (VAC), light attack squadrons (VAL), heavy photographic squadrons (VAP), and strike fighter squadrons (VFA). Reserve histories begin in 1970. More than 700 photographs are included.

Orders can be mailed, FAX'ed, or telephoned to GPO. Orders should include the book's or CD-ROM's stock number and form of payment. The book's stock number is 008-046-00168-5. The book costs $46. The CD-ROM's stock number is 008-046-00170-7. Its price is $18. Orders can be FAX'ed 24 hours a day to 202-512-2250. Telephone orders can be placed between the hours of 8 am to 4 pm eastern time weekdays by calling 202-512-1800. FAX'ed and telephone orders must include your VISA or MasterCard account number and expiration date. Mail orders should be sent with check or money order made out to Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Appropriate credit card information may be sent rather than a check or money order if you desire.

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GPO bookstores are located in Atlanta, GA; Denver, CO; New York, NY: Birmingham, AL: Detroit, MI; Philadelphia, PA; Boston, MA; Houston, TX; Pittsburgh, PA; Chicago, IL; Jacksonville, FL: Portland, OR; Cleveland, OH; Kansas City, MO; Pueblo, CO; Columbus, OH; Laurel, MD; San Francisco, CA; Dallas, TX; Los Angeles, CA; Seattle, WA; Milwaukee, WI; and Washington, DC.

U. S . PRECISION FLYING TEAM SELECTED

A five-member team has been selected to represent the U.S. at the 1996 World Precision Flying Championship in Ft. Worth, TX, September 28 through October 6, 1996.

During the U.S. team tryouts, pilots competed in spot landing events (power on with flaps, power off with flaps, power off without flaps, simulated emergency, and simulated over 50-foot obstacles), attempting to touch down on a meter-wide line drawn on the runway.

Two navigation events, 90 nmi in length, were also part of the competition. Both routes included a number of ground checkpoints that competitors had to identify successfully. Only the basic instruments required by regulation are used in these skill-based flying activities.

The winner of both navigation events was Carolyn Pilaar of Greenville, SC. Pilaar has been a member of previous U.S. flight teams and was named top woman pilot of the world twice—in Argentina in the 1990 championship and again in Poland in 1992, also at the championship. In addition to Pilaar (above, left), other members of the team are (l to r) Marvin Ellis, a supervisor with the San Francisco International Airport, of San Mateo, CA; Jason Sprowls, a college student majoring in aviation, of Stillwater, OK; Sam Girardeau, a recreational pilot from Greenville, SC; and Richard Drake, a flight instructor at Oklahoma State University in Tulsa, OK.

The U.S. team tryouts and the World event are sponsored by the international women pilot's organization, The 99's, and the world event is sanctioned by the National Aeronautic Association and the Federation Aeronautique Internationale . For additional information contact Jody McCarrell at the U.S. Team's headquarters at (501) 642-2508 or The 99's at (405) 685-7969.

1995 AVIATION SAFETY PROGRAM COUNSELOR OF THE YEAR NAMED

Mr. Ralph K. Park of Pensacola, FL was named as the 1995 FAA Aviation Safety Program Counselor of the Year. Mr. Park is highly active in the FAA's safety education program for pilots as an Aviation Safety Counselor for the Birmingham, AL Flight Standards District Office (FSDO). A former military aviator, Mr. Park also holds FAA pilot and flight instructor certificates, is a Certified Hazard Control Manager (Master Level), and holds a Master of Science in Safety. He has also flown charters and air ambulances.

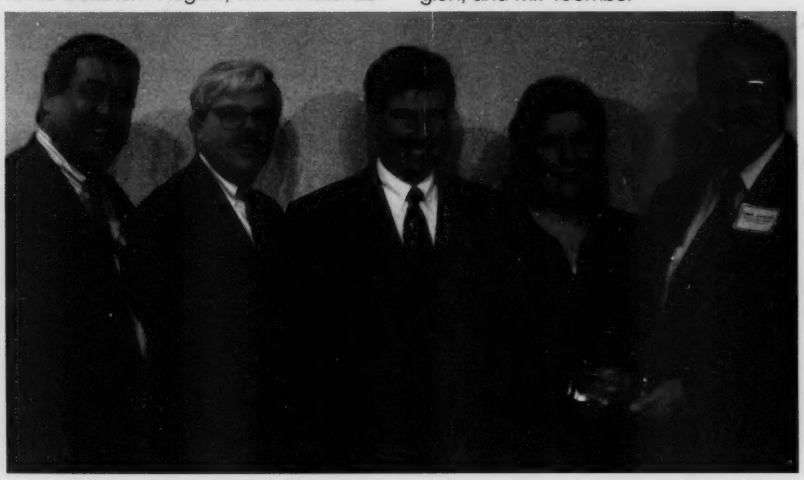
Mr. James Toombs, FAA Safety Program Manager at the Birmingham FSDO described Park as "my shadow on the coast." Toombs said, "His help is of such value that it alleviates the need for frequent travel to Pensacola—a five-hour trip. This represents a significant savings to the FAA in money and time, immensely important in this fiscal climate."

Nominated by 10 of his fellow Aviation Safety Counselors, Park's contributions in volunteer time include scripting audio/visual presentations on aviation safety, training of his fellow counselors in effective presentation techniques, coordinating local safety resources for FAA seminars and workshops, writing safety articles for local aviation newsletters, maintaining a professional aviation safety lending library for pilots, conducting annual workshops for flight instructors, and numerous other safety-related efforts.

In a letter notifying Mr. Park of his award, FAA Administrator David R. Hinson said, "People like you and your fellow counselors are the backbone and the heart of the Aviation Safety Program. Without you and your 4,000+ counselor colleagues, we would be unable to reach the hundreds of thousands of airmen that we do every year."

At an awards banquet in his honor on January 11, Mr. Park received a commemorative trophy, designed especially for the National Aviation Safety Program Counselor of the Year, from Mr. Roger M. Baker, Jr., National Aviation Safety Program Manager; Ms. Carolyn Blum, Regional Administrator for FAA's Southern Region; Mr. W. Michael Sacrey, FAA's Flight Standards Division Manager for the Southern Region; Mr. Thomas Liederbach, Regional Safety Program Manager for the Southern Region, and Mr. Toombs.

Aviation Safety Counselor of the Year Ralph Park holds the trophy he recveived January 11.



L to R: Jim Toombs, Roger Baker, Mike Sacrey, Carolyn Blum, and ASC of the Year Ralph Park.

Michael's Dream

by Edward D. Waters

ow I wish that I could fly
And paint white lines across the sky
And leave my friends, all duty bound,
All shackled to their prison ground.

To etch the sky so all could see
From now until eternity
Across the azure sky I'd go,
An airborne Michaelangelo.

From lofty perch high in the sky
I'd watch the earth go sailing by
And swing my brush as I float by—
My Sistine Chapel of the sky.

For only those who've flown the sky
Can contemplate as well as I.
That sea of air above us all
Entice those who'll heed the call.

So I'll take my nimble craft on high
For my domain is of the sky.
I'll drift and turn and soar and glide
So high above the oceans' tide.

Oblivious to time and space,
Untethered from my dwelling place,
That sea of air still beckons me,
Above the vast and rolling sea.

I'll drift on through those clouds on high
Embracing each as I float by.
But, alas, I know that I must go
To that revolving sphere so far below.

With great reluctance I'll float on down
To tender contact with the ground,
Content to know that I can fly
Much higher than the sky is high.

Content to know that I have flown—
For I have flown.
Yes, I have flown!

This poem was submitted by Martin J. Ingram, Manager of FAA's Flight Standards District Office in Charlotte, NC. The author was a friend of his.

Mr. Waters was a house builder in the Worcester, MA area and had a strong love of flying. He had a private airfield on his property and was also involved in flight instruction. He wrote "Michael's Dream" when a friend of his, Michael Germana, wanted to learn to fly but couldn't get beyond the solo phase.

Mr. Ingram says, "Ed was a very sensitive, strong, and determined individual and could master anything execpt the cancerous tumor which took his life on May 27, 1994." Ed's "FAA connection" is Charlie Waters, an inspector in FAA's Farmingdale FSDO. Both brothers, Mr. Ingram says, were "devoted to flying and general aviation. Ed's poem I'm sure will have different meaning for different folks. For me, it has special meaning. Although I can say I got beyond the solo phase of my flying career, I'm now at the point where I am moving further away from the flight deck and more into the management role. The poem is a great reminder of the common bond that your readership shares—the love of flying."

It is also a reminder that aviation is more than the "big" names; it is people like the late Ed Waters, whose love of flying is so obvious in his words. So many of us get grounded by our desks, but Ed flies eternally waiting for the rest of us to join his formation.

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A. Mario Toscano photo